

AMERICAN BUILDER

THE WORLD'S GREATEST BUILDING PAPER

Vol. 43.

CONTENTS FOR AUGUST, 1927

No. 5.

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Published on the first day of each month by American Carpenter and Builder Co.; Wm. A. Radford, *President, Treasurer and Editor-in-Chief*; Wm. A. Radford, Jr., *Vice-President*; E. L. Hatfield, *Vice-President and General Manager*; Bernard L. Johnson, *Vice-President and Editor*; Roland D. Radford, *Secretary*; S. C. Kellenberger, *Dealer Service*; Charles G. Peker, *Eastern Editor*; Delbert W. Smith, E. B. Wolfrom, C. R. W. Edgumbe, L. H. Reich, O. H. Sutter, Cecil W. Blashill, H. P. Sessions, J. J. Dubro, *Advertising Staff*.

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PROTECTION FOR OUR READERS—The publishers of the AMERICAN BUILDER reserve the right to decline any advertising they believe is detrimental to the interest of its readers; to edit advertising copy and to change or eliminate any statements that reflect injuriously or cast discredit upon other building products, machinery, equipment, supplies or tools.

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Building Industry Far Greater Than Usually Pictured

WHEN AMERICAN BUILDER issued a forecast in the fall of 1926 for a seven billion dollar building year in 1927, it was by far the largest forecast of building values issued up to that time. Those who based their opinions on commonly accepted building statistics might have thought this excessive. However, by January, 1927, reports of contracts let in 1926 totaled close to seven billion dollars for that year.

Reports of contracts let, published by the F. W. Dodge Corporation, are generally accepted as the most complete available but it would be impossible to gather complete building information from every community in the United States with less than an army of census-takers. This is evident when we consider that there are some 69,000 post offices in the United States.

Many published statistics are misleading because incomplete. Building permit values are reliable so far as they go but they come only from the large cities, containing but a fraction of the total population. For instance, the compilation of building permits published by the Department of Labor, Bureau of Statistics, represents only 274 of the 2,500 cities of the United States, containing but 36 per cent of the total population. S. W. Straus & Company, the well-known bond house, publishes a more complete compilation which includes reports from 472 cities. But, there is an equally large amount of construction in the unreported cities and rural areas which is not included.

The Department of Labor, taking the figures from the larger cities, reported in 1925 that 64.7 per cent of the total value was residential; all other buildings, 35.3 per cent. For 1926, the building permit figures in these same cities show a percentage of 63.3 per cent residential. However, the F. W. Dodge Corporation reports only 42 per cent of the value of contracts let as residential. This discrepancy is probably due to the Dodge figures including engineering work, such as dams, bridges and public works, in their total but even more to the fact that a large percentage of residential buildings are erected by builders (without contracts), for resale. Thus, the Dodge figures omit practically all the residential building erected by investment builders throughout the United States where these builders are themselves the owners and no contracts are required.

Those who look upon the present rate of building activity as abnormal and temporary have overlooked a number of factors tending to create a new building shortage every year. One is the constantly increasing growth of population, or excess of births over deaths, which adds every year new population sufficient to require the building of 300 small cities annually. For instance, the National Bureau of Economic Research estimated the population of continental United States at the close of 1926 as 115,657,000 inhabitants. The rate of increase during the decennial

period 1910 to 1920 amounted to 14.9 per cent, or almost 1.5 per cent annually. Therefore, during 1927, the natural population growth will add about 1,734,000 people to the number of inhabitants.

Even larger factors in new building requirements are depreciation and obsolescence. A building may have a life of over 50 years but its finish and equipment have become sadly worn by that time. Also, it is out of the picture from the modern viewpoint and, therefore, not profitable commercially. If it is a home, the owners usually prefer to build or buy a fine looking, conveniently equipped, modern home rather than continue to pay increasing sums for repairs and upkeep on an old building which is hopelessly behind the times. So great has been the evolution in homebuilding and equipment that houses only 10 or 12 years old are badly in need of modernizing. The owners often prefer to sell or rent and build anew. So it will be seen that the rate of depreciation and obsolescence is governed by buildings having an average life somewhere between 10 and 50 years. Fifty years means a depreciation of 2 per cent per year; 10 years would mix it at 10 per cent annually. Therefore, a depreciation of 3 per cent is extremely conservative.

The factor of obsolescence applies with even greater force to store buildings, office buildings, schools, theaters and apartment buildings. Stores must be up to modern standards of appearance and equipment in order to draw trade. They must be as well housed as their competitors or the crowds will go the other way. It is the same with theaters.

Entirely new educational standards have created new types of school buildings. Modern school buildings are safer, better lighted, heated and ventilated. They have auditoriums, gymnasiums, laboratories, class rooms, cloak rooms and cafeteria, and the old school buildings must give place to them, to conform to public opinion.

The annual value of buildings which must be replaced on account of fire is fairly well known and is fixed by the National Board of Fire Underwriters at about \$500,000,000 for the United States and Canada. The flood and tornado loss is variable but this year it has been exceptionally heavy.

Assembling all these factors together, it becomes evident that an annual building program of over seven billion dollars is quite normal and is subject to a normal yearly increase.

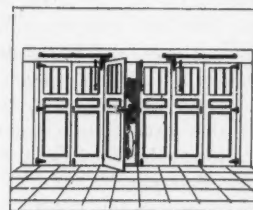
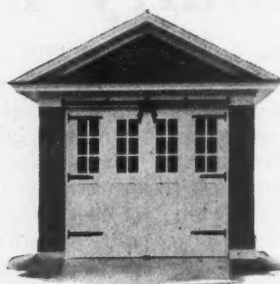
Housing required for new population annually.....	\$1,735,000,000
Other buildings required for new population.....	1,138,950,350
Annual fire loss.....	335,000,000
Annual tornado and flood loss.....	100,000,000
Depreciation and obsolescence on the 22,000,000 dwellings in the U. S. at 3 per cent.....	3,031,244,000
Depreciation and obsolescence applied to all other classes of buildings	1,030,304,400
	\$7,370,498,750

The **WAGNER** Line

of Hangers for Folding, Sliding Doors

For every type of folding-sliding door there is a Wagner Hanger and Wagner track specially designed to fill the need.

Whether for the smallest garage or the most imposing hotel structure, whether for a farm building or for a modern skyscraper, Wagner equipment is produced to give unsurpassed service.



Wagner Cloztitle Garage Door Sets



There is a Wagner Hanger for every type of sliding, folding door.

The Wagner Cloztitle Garage Door Set is the acknowledged leader when it comes to giving the finest, most satisfactory service obtainable.

The Wagner Hanger Arm has the patented stop—a built-in feature—which absolutely prevents it from stopping on dead center or from becoming reversed. If adjustment is necessary to provide added clearance, simply turn the nut on the trolley bar and the door is raised.

The track comes in full lengths instead of in short sections. It is smooth and self-cleaning and will never give trouble. An additional advantage is the fact that it can be installed close to and parallel with the structure, rather than having to be set on brackets at an angle. In this way, greater strength is secured.

In every respect, Wagner Cloztitle Garage Door Sets lead in real superiority. Whether the installation calls for two doors or ten, there is a Wagner Cloztitle Garage Door Set that will exactly meet your requirements.

Wagner Hangers and Track Meet Every Requirement

The Dix Noiseless Door Hanger is specially made for sliding-folding doors in residences. The wheels never become derailed, adjustments are easily and quickly made, and there is no metal to metal contact. The composite rail has a strip of hard maple on which the wheels, which have vulcanized fibre centers, run.

Specify Wagner Hangers and Track wherever there is a sliding or sliding-folding door. For garages, farm

buildings, residences, warehouses, hotel or office buildings, for elevator doors, for partitions or overhead carriage systems, Wagner Hangers and Track will meet the most exacting requirements.

If you have any problems to meet regarding sliding door installations, whether in residential, farm, office or industrial structures, write us. We shall be glad to give you full detailed information.

It pays to be familiar with the Wagner Line of Hangers and Track. Write for a copy of the Wagner Catalog. You will find it full of practical and valuable information.

WAGNER Hangers



Used the World Over

WAGNER MANUFACTURING COMPANY

CEDAR FALLS, IOWA



Formerly AMERICAN CARPENTER AND BUILDER

1827 Prairie Ave., Chicago—250 Park Ave., New York City

June Construction Contracts Break All Records

JUNE construction contracts in the territory east of the Rocky Mountains broke all previous monthly records, according to F. W. Dodge Corporation. Building and engineering work contracted for last month in the 37 states east of the Rocky Mountains (including about 91 per cent of the country's total) amounted to \$632,478,000. There have been only four previous months that had as much as \$600,000,000 in contracts; August, 1925, August, 1926, March, 1927, and April 1927. March of this year held the previous high record of \$620,738,200. The June increase over May was 15 per cent; over June, 1926, 16 per cent.

The June record brought the volume of construction started during the first half of the year up to \$3,187,993,300, which is 2 per cent ahead of the first half of 1926. Up to June, this year had been running a little behind last year. It should be understood that building construction has run about 3 per cent behind the first half of 1926 and that engineering work has shown an increase.

The Central West shows the greatest gain over the June, 1926, figures, the percentage of increase over last June being 39 per cent. This is the second record month for the country as a whole and indicates that 1927 will be another \$7,000,000,000 year, as the last half of the year is usually larger than the first.



Cypress Grades Standardized

AT a recent meeting of the Central Committee on Lumber Standards the American lumber standards were extended to include hardwood factory lumber and the upper factory grades of cypress. The committee was informed that the differences existing in the grades of cypress yard lumber and shop grades, as now practiced by the Southern Cypress Manufacturers' Association and the National Hardwood Lumber Association, would soon be eliminated.

Unanimous approval of the basic grading provisions for hardwood factory lumber came as the result of a joint request from the National Hardwood Lumber Association and the Hardwood Manufacturers' Institute.



Building Occupancy Is Normal

A RECENT article appearing in the New York Times will be of significance to those who are interested in the question of whether or not there is a shortage or over-supply of building at the present time. This article says:

"Despite the heavy building programs of recent years, rental conditions throughout the United States are sound, according to the annual report of Lee Thompson Smith, of New York City, chairman of the Rental Committee of the National Association of Building Owners and Managers.

"During the past five months," Mr. Smith reported to the convention held in Detroit, "the amount of vacancies in office space in 38 leading cities of the United States, including 1,738 buildings, remained practically stationary.

"Rental conditions throughout the United States are satisfactory," reported Mr. Smith. "Although we have gone through several years of unprecedented building activity, the general good condition of business has resulted in a great absorption of the new space—greater than we had reason to anticipate.

"The fact that the average vacancy throughout the United States for the last nine surveys has been hovering around 10 per cent, is conclusive proof that office building managers must base their budgets upon 90 per cent occupancy being normal. Anything taken in over the 90 per cent occupancy should be placed in a reserve fund to take care of the time when occupancy is sub-normal."



Develop Use of Preserved Wood

"ALTHOUGH it is generally recognized that preserved wood represents an appreciable economy not only in the industrial field but also in the general building and construction industries, the public has not been in a position to purchase small quantities of preserved wood from the retail yards," says the monthly news bulletin of the U. S. Department of Commerce.

"The National Committee on Wood Utilization has started a project whereby one of its members doing a wholesale and retail business in the Middle West has been put in touch with a well-known wood-preserving plant and both are spending a considerable amount of money in the building up of this trade in a restricted area. The committee is assisting in this work by informing the consumers of the advantages of using preserved wood and is rendering assistance in many other directions. If this plan meets with the expected success these activities will be extended to other parts of the United States."



Metal Lath Standardization

COMMENTING on the standardization of metal lath, "Sheet Steel Service" says: "The recent standardization adopted by the metal lath manufacturers is proving of great value to the entire building industry, especially to the architect and the contractor. Architects who have been specifying lath by gage alone find upon investigation that a 24-gage sheet can be expanded to any desired distance and the unscrupulous sellers will furnish less metal than is actually called for by the specifications.

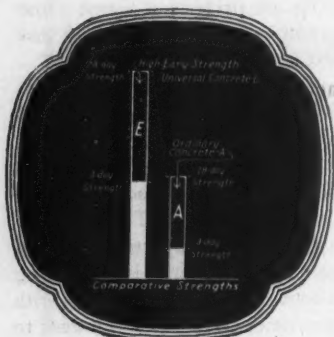
"If weight alone is specified, this is eliminated since it is only natural for manufacturers to supply the thickest steel practicable for any specified weight of each type, because the thicker the sheets, the cheaper the raw steel at the mill. Thus weight specification tends toward thicker gage, while that by gage tends toward less reinforcing per yard.

"Architects are urged to specify by weight, then, according to the U. S. Department of Commerce recommendations, and to use the standard specifications for proper and economical weights for all desired spacings and conditions. Where formerly there were some 125 varieties of this material on the market, there are but 24 now and these are distributed under three general classifications: metal lath, flat rib lath and 3/4-inch rib lath."

first Aid in construction Emergencies



Typical Examples of Problems Solved with High-Early-Strength Universal Concrete



An Indiana packing company wished to replace the floor in its killing room but did not want to incur the expense of interrupting operation during working hours. *High-Early-Strength Universal Concrete* provided the floor over the week-end.

Quick repaving of Duluth's principal industrial street with a minimum of traffic delay presented a problem. *High-Early-Strength Universal Concrete* solved it.



A hospital driveway in Iowa had to be rebuilt. Long and serious tie-up was avoided by *High-Early-Strength Universal Concrete*.

A Chicago loading platform had to be replaced without interference with loading; the new



Northwestern University stadium had to be ready for use at the opening of the football season to avoid a 50c-a-seat penalty to the contractor; a West Virginia road used by 5,000 motorists a day had to be repaved with minimum inconvenience to traffic. In each case, *High-Early-Strength Universal Concrete* solved the problem.



High-Early-Strength Universal Concrete is made with the usual labor, usual materials, usual equipment and standard—not special—Universal cement, all applied according to fully tested methods. Having a higher ultimate as well as a higher early strength, it also is permanently better and stronger concrete. For full details send in the accompanying coupon.



Without obligation, please send me detailed information on methods of securing strong concrete in 3 days with the usual materials and equipment.

UNIVERSAL PORTLAND CEMENT CO.
210 South La Salle Street, Chicago

Name _____
Address _____

AB&77

Universal Portland Cement Co.

Chicago Pittsburgh Minneapolis Duluth Cleveland Columbus New York

Concrete for Permanence

Everybody's Business

By FLOYD W. PARSONS

Preventable Losses

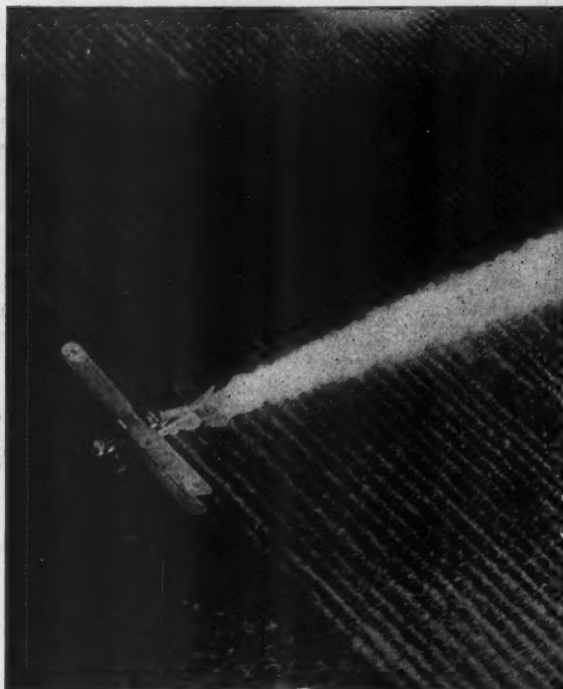
A WASTEFUL world will soon be depending upon its scrap heap for essential supplies. With population totals being compounded at the rate of 1 per cent or more a year, it is already evident that we must perpetuate our existence through chemical synthesis. While the present generation may not see atomic energy employed widely as an industrial raw material, there is no doubt that the near future will disclose synthetic rubber made from petroleum or some other cheap source such as the soy bean. Wood will be so valuable in the hands of the chemist that we will stop burning it for fuel, thereby increasing the market for coal a hundred million tons a year. Artificial stone, or other composition material will be cheaper and no less durable than natural rock, and the furnishings of our homes will be made largely of bakelite, artificial leather and artificial silk.

Tens of millions of dollars will be saved yearly by substituting non-corroding metal alloys for copper, lead, zinc, tin and antimony. Furniture that is fireproof and resistant to decay will be made out of resinoids and other wood derivatives just as rayon, celluloid and artificial leather are now made.

And such developments are of today—not the distant future. It was only 25 years ago when a million acres in India were devoted entirely to the growing of indigo. Now the natural product supplies only 1 per cent of the world's demand. Furthermore, the chemist is actually improving upon nature. Synthetic products like procaine have practically all the virtues of the natural drug and fewer of its deleterious effects. Man's substitute for cocaine is not habit-forming, is cheaper and is less toxic.

It is these advances in the great field of chemistry that have turned our thoughts to the tremendous losses occurring on all sides. Taking business as a whole, the present ratio of waste is no less than 50 per cent. That is, our annual loss now amounts to more than 20,000,000 man-power. A half-ton of coal is left in the ground practically irrecoverable for every ton mined and sold. A like story might be told of oil, natural gas, lumber, metals, and even of animal life, particularly our fisheries. While it would be absurd to say that we can eliminate these losses entirely, we have a long way to go before we have cut out the waste that the technical arts already know how to prevent.

On the side of progress one might mention the million dollars saved by revisions of obsolete building codes; the 20 per cent increase in the ton-miles of freight handled per railroad employee; the improvements in shoe manufacture that allow the worker who produced 100 pairs of shoes 13 years ago now to turn out 117 pairs in the same working time; the revolution in automobile manufacture



Courtesy Crop Improvement Bureau

Fighting the Boll Weevil from the Air.

that enables the worker to produce three cars where he only produced one; and the betterment in the cement industry that gives us 158 tons where we only got 100 tons before. There is even reason to believe that the terrific waste of that recurring business cycle has been lessened materially by our having made the dips in the business curve less frequent and less severe.

In simplification the results have been most encouraging. A chain system of drugs stores cut its variety of commodities from 20,000 to 10,000, increasing the volume of business 40 per cent and the turnover of stock 70 per cent, while at the same time decreasing investment and inventory. A company operating hotels made a tremendous reduction in glassware styles, carpet designs, patterns of table linen and dozens of other articles in common use and the outcome was an added profit of approximately \$100,-

000 a year. A food manufacturer doubled his sales by cutting his varieties in half. A shoe company reduced production costs 31 per cent, overhead 28 per cent and inventories 26 per cent when it reduced from three grades to one and from 2,500 styles to 100. A similar story comes from a hat manufacturer who effected a 40 per cent saving in cost by cutting his models from 3,412 to less than 600. Such facts explain how wages and profits can go up in some fields while prices have gone down.

But eventually there comes an end to the savings resulting from any special type of effort. When the slack has been taken up and the most obvious faults corrected, the increase in savings are sure to be at a far lower rate. It required only a few years to reduce the average consumption of coal per kilowatt-hour in electrical generating plants to a third of what it was. But it would be folly to assume that such immense economies will continue unabated. In order to maintain our advance we must be forever directing our attention to opportunities in new quarters.

Our national bonfire costs us \$600,000,000 annually, and more American lives have been lost through fires since the World War ended than we lost in the war itself. During this short period we have burned up property having a total value almost equal to the national wealth of Belgium, which is a serious indictment in view of the fact that 90 per cent of all fires are preventable the match of the careless smoker ranking first as a cause. Our fire cost is five dollars per person or 20 times that in Europe, and the premium payers of the insurance companies pass this loss on to the public, chiefly in higher rents. An evil that snuffs out 12,000 lives a year and causes injury to twice that many people is something to think about.

One of the least understood of all our problems is that of insect pests which cause us an annual loss of more than \$2,000,000,000. Ten per cent of everything raised on Ameri-

can farms is destroyed by insects. In the spruce forests of New York, Maine and eastern Canada, the yearly damage by insects is equivalent to the paper requirements of all our periodicals for two weeks. The boll weevil costs us tens of millions of dollars annually, while the Pandora moth, the crambus, the hornworm and thousands of other species of beetles, rootworms and moths ruin hundreds of thousands of acres of timber, tobacco, beans, potatoes, nuts, melons, vineyards and orchards. This yearly damage to crops nullifies the labor of nearly a million people.

Many have wondered why it has taken man tens of thousands of years to get a secure footing on the face of the earth. Is it not likely that our type of animal has been all but wiped out many times by the savage attacks of insect enemies? The tepeguas or black ants of Mexico have been known to move in such numbers that every living thing in their path—frogs, rodents and even snakes—was actually eaten alive. A few months ago out in California millions of mice swarmed up out of the bed of Buena Vista Lake, over-running the countryside, destroying crops, invading homes and making the highways slippery with the remains of their mangled bodies. A sheep caught in a pen was killed by the rodents and its bones stripped of flesh. The Government lent aid and 50 miles of trenches were dug and partly filled with poisoned grain to stop the march of the mice. The defensive measure

was effective and millions of the pest were killed. What would have happened in case of such an invasion two or three thousand years ago when there was no chemistry to support the efforts of man in his emergency?

The entomologist tells us frankly that insects are better fitted for existence upon the earth than is humankind. Their birth rate is tremendous, many species laying half a million eggs in a single batch. A microscopic organism known as the stylonchia has a birth rate so high that if it were not for the equally high death rate, this minute body would produce a mass larger than the earth in a week's time. Fifty years ago three rabbits were taken to Australia, and 40 years later 96,000,000 rabbit skins and 25,000,000 frozen rabbits were shipped back to Europe. The problem is serious because our intensified farming methods and widespread transportation facilities have opened up new and greater opportunities for the spread of pests from region to region and continent to continent. Civilization in Africa is now blocked by the tsetse fly, and realty values in many parts of the United States are held at a low level by the mosquito.

There is practically no phase of life today untouched by waste in materials or motion. Hundreds of thousands of people are idle against their wills because of seasonal employment, strikes and lockouts, booms and depressions, preventable accidents and preventable sickness, excess plant capacity and overloaded inventories, too great a variety of styles, too many retail stores, high-pressure salesmanship that overburdens the consumer with debts, and a lack of research coupled with the deliberate obstruction to better methods by those who refuse to discard obsolete machinery.

The field of business economy is one virgin with opportunities. Wooden structures all over our land are being destroyed by fungi notwithstanding that technical knowledge has disclosed simple measures to check the dry rot of woodwork. Decay is progressive and infectious. The fundamental rule of rot prevention is, "remove all diseased pieces at once." While such things as creosote should be used in the course of construction, they can be applied with excellent results even afterwards, and it is no exaggeration to say that a can of creosote and a paint brush in every American home, office and factory would save us tens of millions of dollars annually. Also the far wider use of insecticides would reduce national waste by many more millions.

The present loss of human energy in lines of effort that add nothing to the health, wealth and happiness of humanity is beyond estimation. An army of people are engaged in commercialized quackery. Some handle fake medicines, while others seek easy money through gambling, through fraudulent business promotion, and even through capitalizing the faith and fervor of religious sects. All this must change. These transformations will not come instantly; they can only be realized through the slow processes of education.



Fashionable Shops Built Around an Old Residence, Colfax and Park Ave., Denver; Walter H. Simon, Architect.

From Acorn to Oak in the Building Business

Growth of the Turner Construction Company's Business from \$40,000 to \$28,000,000 Annually

SUCCESS in any line of endeavor usually starts with an idea and the faith, vision, ability and energy to work out its practical application. In the case of Henry C. Turner, whose portrait adds interest to this page, it was faith in the idea of reinforced concrete construction and its value for industrial and commercial buildings which underlies the success of the Turner Construction Company, of which Mr. Turner is president.

The character of the man speaks eloquently from his portrait—keen, practical, able and fearless—one who seeks to promote the interests of others as well as his own.

From a modest start, the Turner Construction Company has grown, in 25 years, to be a leader in the construction industry with a marvelous history of large buildings successfully completed—a record volume of construction. Measured in money, the business started in 1902 with an annual business of \$40,000 and reached a total of \$28,000,000 for the year 1926.

Mr. Turner's modesty is clearly shown in the following paragraph from his pen:

"In 1902, reinforced concrete was a new building material. The company which could successfully adapt it to industrial buildings would naturally take a certain leadership and enjoy the success which invariably comes with the successful application of a new material or appliance to the benefit of industry."

Incidentally, here is a lesson for many of our readers. How many of us are scrutinizing all the materials and appliances brought out in the building field, which may hold the key to success for some of us?

Before reviewing the history of the company and the work they have done, it should be stated that Mr. Turner has a genius for organization and yet is seeking to decentralize it as much as possible, with vice-presidents or general managers in charge of the various territories and departmental heads at the home office meeting frequently in general assembly. However, systematic methods contribute to success in all matters where routine should govern. The construction of forms, placing of reinforcing steel, mixing and pouring of cement are reduced to standard practice wherever possible and estimating and accounting methods follow standardized forms and methods on contracts in all territories.

Mr. Turner is, first of all, an engineer and desires his company and its customers everywhere to get the benefit

of the company's experience in engineering and construction. Back in 1900, Mr. Turner, then engineer for the Brooklyn Wharf & Warehouse Company, met Mr. Ernest L. Ransome, the pioneer of reinforced concrete construction

in America. Mr. Ransome and others abroad had conceived the idea of combining steel and concrete for structural members. In fact, Mr. Ransome had completed, on the Pacific Coast, one of the first reinforced concrete bridges built.

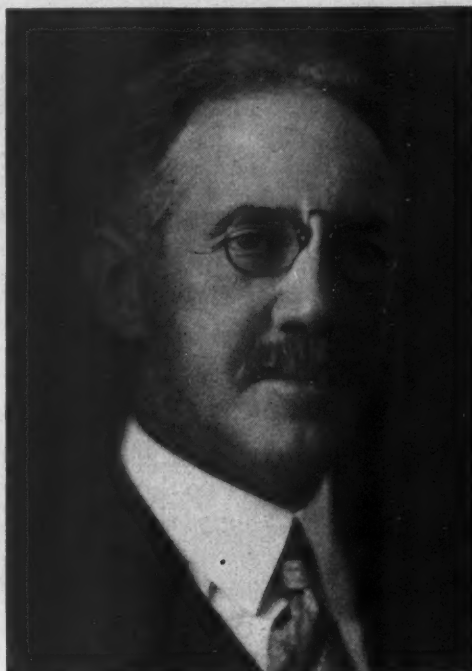
On coming East, Mr. Ransome secured the financial backing of Charles M. Pratt, of Charles Pratt & Co., and the Ransome Concrete Company was organized. Mr. Turner, who had resigned his position with the Brooklyn Wharf & Warehouse Company, became one of the two engineers for the newly formed Ransome Company.

Mr. Ransome, with his genius for invention, had developed a concrete mixer, had introduced the cold twisted steel reinforcing bars and patented a series of inventions involving the use of reinforced concrete as a structural material. A church, a house and a laboratory were built by the Ransome methods, but, unfortunately, the company was not a financial success.

Mr. Turner and Mr. D. H. Dixon, also an engineer with the Ransome Company, both had faith in the new structural method. Among a few of his friends, Mr. Turner succeeded in raising a cash capital of \$25,000 and this was the inception of the Turner Construction Company, which now has a capital of \$3,307,885.

The first building erected by the new company was a small one at 207 Ryerson Street, Brooklyn, for a savings institution called "Thrift," after which followed three one-story buildings for J. B. King & Co. on Staten Island, N. Y. These were the forerunners of large and profitable contracts received later. At the time, however, the first contract to attract widespread attention was a contract for stairways in all the New York Subway stations. The work on these stairways attracted much attention from engineers be-

cause of the ease of construction and the inherent strength of the completed stairways which easily passed the test of heavy overloads placed on them with sandbags having a combined weight many times in excess of any possible live load. Another feature of the reinforced concrete construction was its adaptability to meet local conditions with-



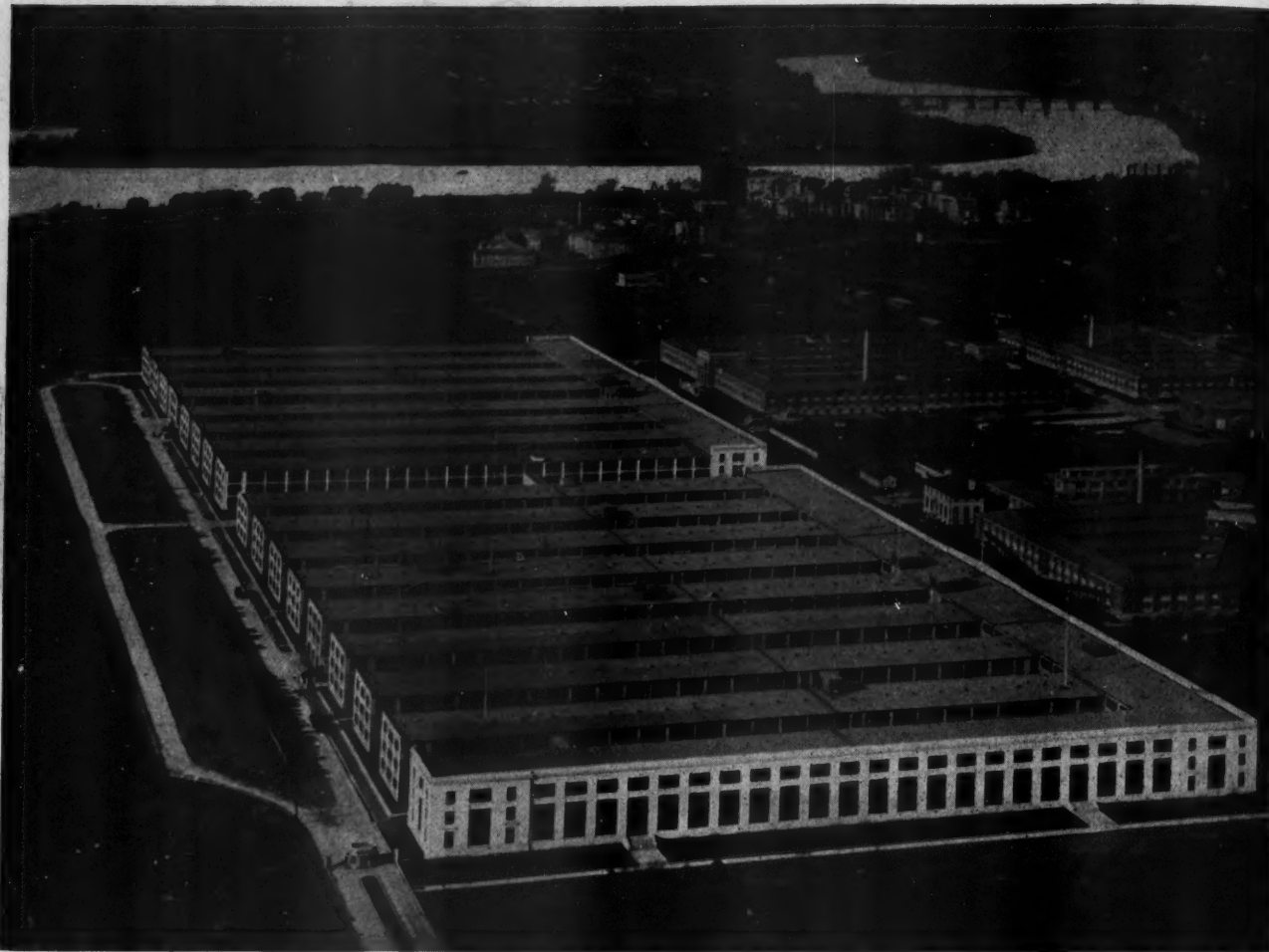
Henry C. Turner, President Turner Construction Company

"We made friends of our clients and they have always been willing to pass a good word to a neighbor desiring to employ a progressive builder. This has been a strong factor in our success."

"Progress is generally measured in material things, although in our case progress has brought the happy and congenial association of a large group of fine men."

"Measured in material things, our business has grown from \$40,000 in 1902 to \$28,000,000 in 1926; from an office staff of 3 in 1902 to 208 in 1926; from a small office at No. 11 Broadway to offices in New York, Boston, Philadelphia, Buffalo, Atlanta and Chicago; from a capital of \$25,000 to our present capital and surplus of \$3,307,885. Dividends have been paid regularly since 1907."

"We are starting the next quarter century. Many changes will occur to meet the demands of civilization. Are we to continue to centralize, or will we seek greater happiness and comfort in decentralization? I hope the latter change may come."



Navy and Army War Office Buildings Built for the Government in Potomac Park, Washington, by the Turner Construction Company During the War. These buildings provided 42 acres of floor space but were completed in five months in spite of piles having to be driven under all foundations.

out elaborate plans and fabrication. Little brass nameplates bearing the company's name were placed on each of these stairways and did much to make the company widely known, as did the slogan—"Turner for concrete."

The growth of the company's business to its present size and importance has been due, in large measure, to the pleased satisfaction of owners and to "repeat" business—the best testimonial any company could have. For instance, the J. B. King Company, the big manufacturers of gypsum products, have given them 27 contracts; the Long Island Railroad, 24 contracts; the Great Atlantic & Pacific Tea Company, 23 contracts; the Bush Terminal Company, 22 contracts; the Standard Oil Company, 21 contracts, and so on through a long list of nationally known concerns.

During the war years, the United States Government was, naturally, their biggest customer and it was a great advantage to this country in time of war to have such a well equipped, skilled building organization to erect mammoth buildings necessary to the conduct of the war—far exceeding peacetime requirements—in record-breaking time. One of these contracts was for the Navy and War Office Buildings at Washington, shown in our illustration, in which were provided 42 acres of floor space at a cost of \$7,250,000.

Other enormous government contracts were for the U. S. Army Supply Base, Brooklyn, N. Y., providing 125 acres of floor space and costing \$25,000,000, and the U. S. Navy Fleet Supply Base, also at Brooklyn, providing 52 acres of floor space and costing \$7,400,000. The first of these, the Navy and War Office Buildings in Potomac Park, Washington, in spite of their great size and the fact that they required pile foundations over the whole area, were completed in record time. Work was begun in March and the

buildings were completed in August—a rate of construction which astonished Washington and called for favorable comment on the floor of Congress.

The building record of the Turner Company is so extensive and includes so many large and well-known structures that we will only attempt to list a few of the more notable, as follows: the Ingraham Building, Miami, Florida, and the Provident Mutual Life Insurance Company's home office building at Philadelphia are two of the latest and we illustrate construction views of these buildings. The Portland Cement Association headquarters in Chicago was another Turner contract, more notable because of its quality, completeness and interior appointments than its size. Among the other nationally known buildings erected by the Turner Construction Company are "The Breakers" Hotel, at Palm Beach, Florida; the Berkeley-Carteret, at Asbury Park, New Jersey; the new Hotel Dennis, Atlantic City; the Franklin Field Stadium of the University of Pennsylvania; the Sesqui-Centennial Stadium, Philadelphia; the Kearney, New Jersey, Works of the Western Electric Company; the Loose-Wiles Company Building at Long Island City; the Sanford Mills at Sanford, Maine; the Fletcher Castoria Building, New York City, and many others.

Quite early in the Company's history distinct departments were created, each under the head of a competent manager, such as the executive department, contract or new business department, engineering department, construction department, accounting department, and purchasing department. Weekly meetings were instituted at which the heads of the departments were present, and the needs and progress of each operation were carefully discussed.

Naturally, the importance of accurate accounting and cost

keeping have been recognized from the beginning and the very efficient system which is now the basis of Turner bids was devised by its treasurer, Mr. J. Charles Andrews, and his associates.

Accountants are placed on all operations and complete records of expenditures for payrolls and materials are kept there, periodical statements being made to the home office. A force of traveling auditors is maintained who visit the jobs at various intervals and make a careful check of the methods of keeping the accounts, check the entries and supervise the accountant's work from every angle. This system assures an owner for whom work is being done on a fee basis, that the accounting of his work cannot be merged with other accounts, and the record is always available for his inspection.

It was recognized in the very early years that an accurate record must be kept of the cost of various items in building construction if correct estimates were to be made and the operations conducted on an economical basis. The time spent by each workman each day on various items of work must be recorded and the total of all such distributions of time must balance each week with the payroll. Also the system

of reporting must be standardized so that the classifications will be uniform on every operation.

Under the present system, each operation is carefully analyzed and allowances are made for each item of work under the control of the superintendent and the unit price is given for each classification. A speed schedule is also prepared by the general superintendent and general manager giving dates at which various portions of the work are to be completed. Periodical surveys are made by the cost department.

All the construction work of the company is under the general supervision of Mr. D. H. Dixon, with whom each general manager can consult at all times and have the benefit of the knowledge and experience that has been gained on any of the company's operations. A personnel department is maintained under Mr. Dixon's direction to assist the general managers in selecting the field forces. Capable superintendents and foremen can be assigned to the type of work for which they are best fitted, and each unit gets the benefit of the large personnel of the company.

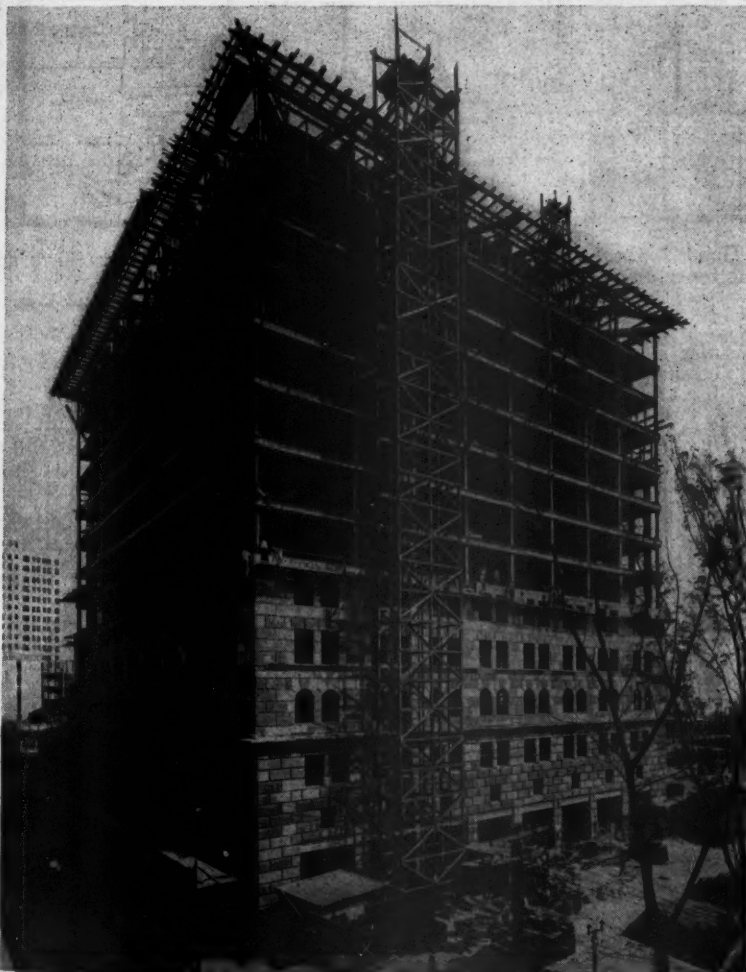
Associated with Mr. Turner in directing successfully the business of the Turner Construction Company are the following officials:

- D. H. Dixon, vice-president.
- E. J. Moore, vice-president, New York.
- T. A. Smith, vice-president, New York.
- A. C. Tozzer, vice-president, Boston.
- J. C. Andrews, treasurer.
- A. W. Chapman, secretary.
- J. P. H. Perry, vice-president, Chicago.
- H. H. Fox, vice-president, New York.
- W. W. Turner, general manager, Philadelphia.
- R. C. Wilson, general manager, Atlanta.
- W. E. Lyle, general manager, Buffalo.
- F. E. Schilling, general manager, New York.

The company's broad mind policy is well expressed in these words of its president: "We are largely a personal service corporation, where success is measured by the excellence of the service rendered to the architects and owners and by their impression of our fairness."



View Taken During Construction of the Provident Mutual Life Insurance Building, Philadelphia—a Recent Turner Construction Company Contract. Both the building and the retaining walls are of concrete.



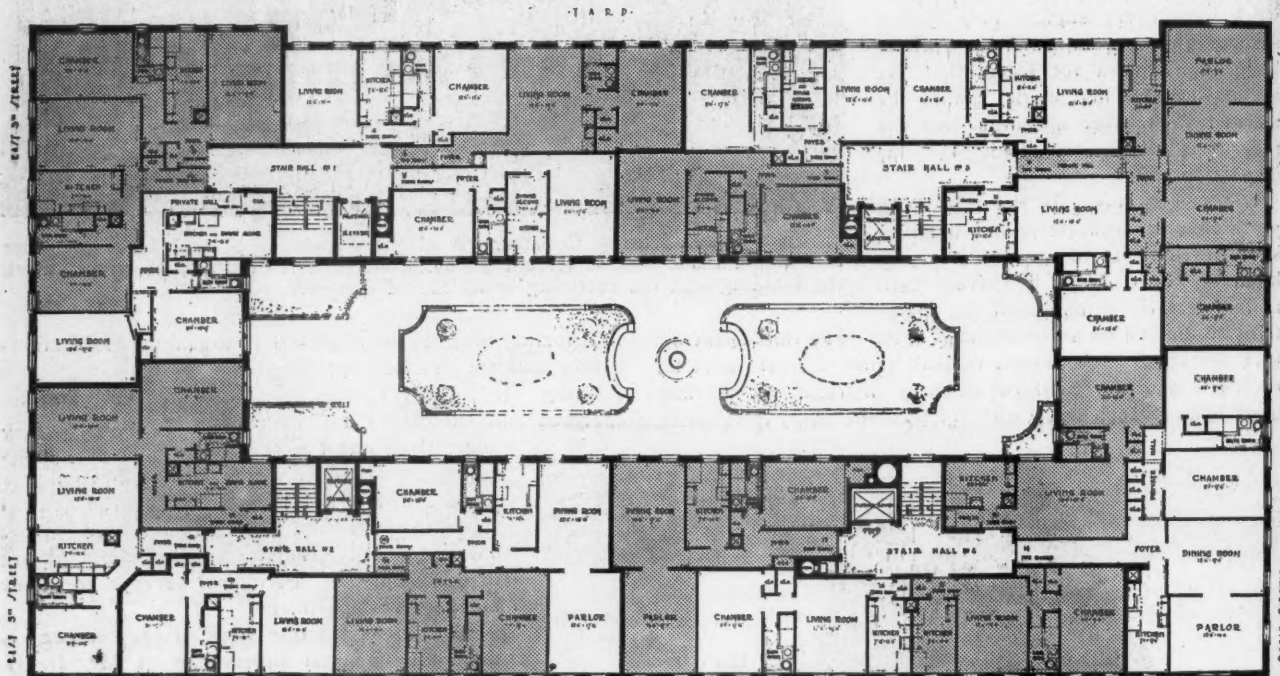
View Taken During the Construction of the Ingraham Building, Miami, Florida, Recently Completed by the Turner Construction Company. This is said to be the largest and finest office building in Miami.

A Brooklyn Apartment Building

RICCA AND UNGARLEIDER, Architects

TEXTURED stucco in half-timbered dormers and other touches of old English architecture, such as arcade entrances having a Tudor effect, make this large apartment building worthy of its site on Brooklyn's most beautiful boulevard. Its 123 apartments are arranged in suites of two, three, four, five and six. There is to be a sunken garden in the large central court. The six floors will be served by four passenger elevators of the automatic

control type, as well as four stairways. All rooms are spacious and so arranged as to afford thorough ventilation of air. The kitchens are lengthened and divided into breakfast room and kitchen proper. There are built-in incinerator flues in each of the four stair halls. Bathrooms all have curtainless needle showers. A fully equipped gymnasium, also a recreation and dance parlor, are located in the basement.



This Plan Is Admirable from the Standpoint of Good Light and Air in Every Room. Practically all suites have an outlook both on the inner court and the outer boulevard.



Tudor Elevations and Old English Half Timbering with Yellow Stucco Relieve the Mass of This Large Apartment Building Now Under Construction in Brooklyn. It is to be known as 1628 to 1640 Ocean Parkway, Brooklyn. Owners and builders are The Estate Road Building Corporation, of Middle Village, Long Island. Architects Ricca and Ungar-leider, of Brooklyn.

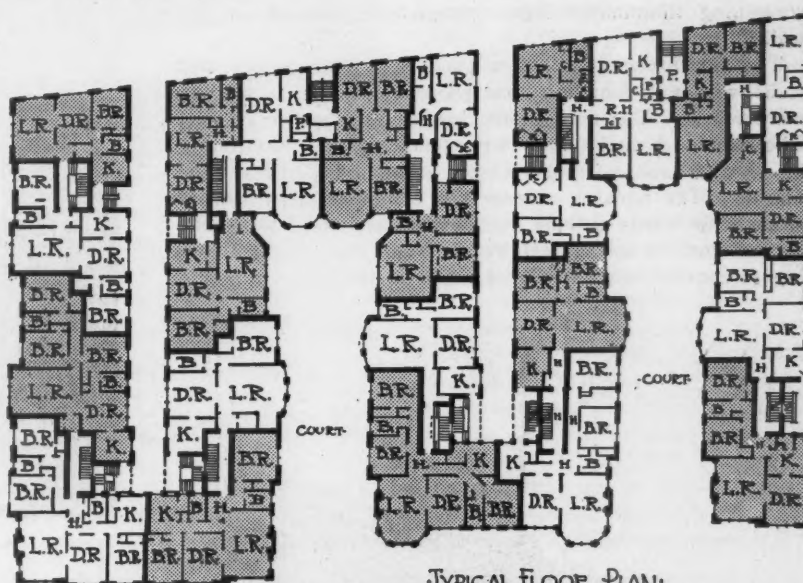
Light Courts Well Planned in this 73-Apartment Building

EVANSTON, the home of Vice-President Dawes and the seat of Northwestern University, is one of Chicago's largest suburbs and has a fine class of homes and apartment buildings. One of the newest of these is the Ridge Crest, an apartment building of the modern type, built of brick, three stories in height with English basement.

A study of the typical floor plan printed on this page shows that the architects—Lindblad and Carlson—have made clever use of light courts to assure plenty of light and air in every one of the 73 suites in the building and at the same time securing the maximum rental return without exceeding the limits set by the building ordinance for this type of building. The basement is high enough for entrances and lobbies—about 7 feet 10 inches—the balance of the basement space being devoted to janitor's quarters, locker rooms, laundry rooms and boiler room. Under the provisions of the ordinance, apartment buildings over three stories and basement in height must be of slow-burning and over five stories of fireproof construction. The ordinance also provides that there must be solid brick fire walls between adjoining suites of apartments.

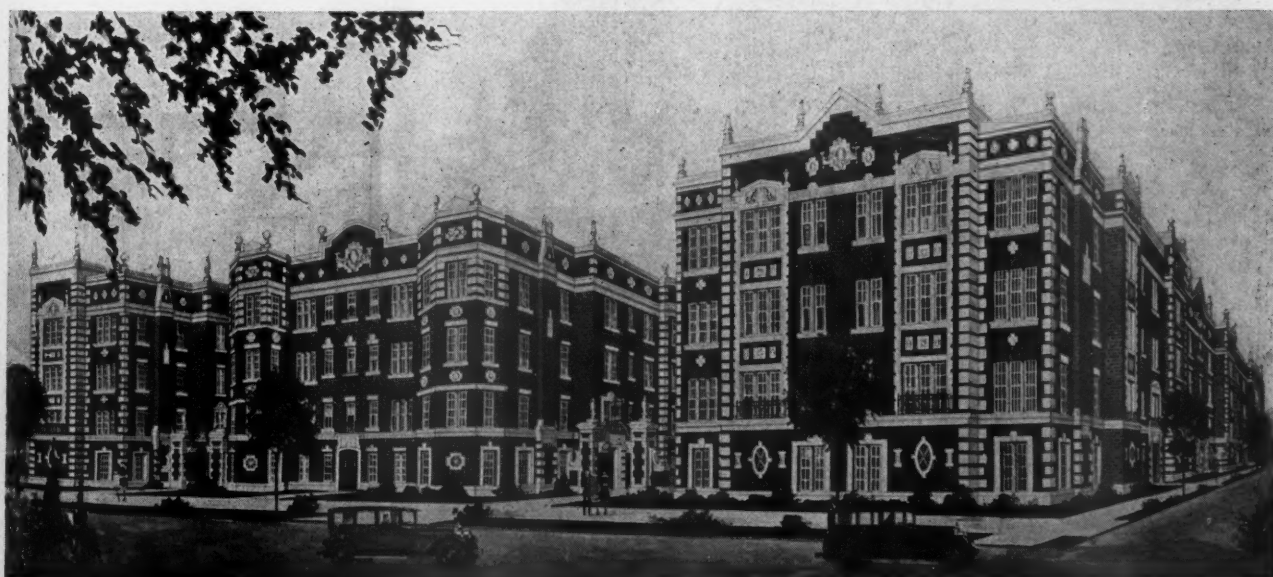
The Ridge Crest will contain 73 ultra-modern apartments and 19 garages. There will be nine apartments of six rooms and two baths; nine apartments of five rooms and two baths; nine apartments of five rooms and one bath; twenty-four apartments of four rooms and one bath; twelve apartments of three rooms and one bath; nine apartments of two rooms and one bath, dressing closet and Pullman kitchen; and one four-room and bath apartment in basement. Fifteen apartments will have fireplaces and disappearing beds. All

apartments will have exceptionally large rooms and will be trimmed with birch and gum, with oak floors; walls to be covered with a fabric wall covering which is decorative but water and stainproof. The baths will have mosaic floors, tile walls, built-in tubs, vitreous china lavatories and showers. The apartments will be equipped with mechanical refrigeration, lighting fixtures of the latest type and will have plaster arches, mirror doors and vestibules and French doors between living and dining rooms. The vestibules will be wood paneled, with mosaic floors and tile base. The building is being constructed of the finest materials and the workmanship is under the personal supervision of the owner.



TYPICAL FLOOR PLAN

The Site of This Building Has a Frontage of 254 Feet on Ridge Avenue and 175 Feet on Hull Street and While the Designers Have Assured Plenty of Light and Air in Every Room, the Plan Is Such as to Make Full Use of the Site and Secure a Profitable Rental Return.



The Ridge Crest, One of Evanston's Latest Apartment Buildings. It has 73 suites of apartments and 19 garages and the apartments have mechanical refrigeration and the latest in decoration and equipment. Lindblad and Carlson, Chicago, architects.

Solving the Problem of the Small Bank Building

SUBSTANTIAL simplicity is the keynote of this impressive little bank building—the Fifty-second Street office of the Philadelphia Saving Fund Society. Substantial load-bearing walls of the very best masonry with simple ornament but embellished with fine wrought iron work produce a dignified effect. The walls have an exterior facing of limestone alternating three-inch and seven-inch courses, with a granite base; Red Arkansas Fossil Marble Panels containing gilded bronze letters. The iron gate, lamps, balconies, etc., are all from the hand of Samuel Yellin, metal worker. The balconies over the panels provide access to reflectors which at night flood the signs with light. On either side of the entrance are bronze frames containing illuminated signs completely recessed in the wall.

The interior consists of a plaster vaulted ceiling and walls, with a 12-foot limestone wainscot and Verde antique marble base. The floor of the bronze vestibule is granite. The remainder of the floor in the public space is alternating blocks and bands of green Kasota stone and Verde antique marble. The banking screen is a combination of Kasota stone with Verde antique marble counters and base. The screen work is by Samuel Yellin. The rear of the banking screen consists entirely of metal furnishings. Banking

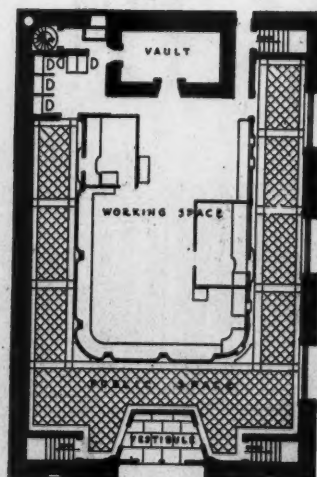
space floor is of rubberstone. The vault is a modern fire-proof vault with steel doors and electric protection.



A High, Vaulted Ceiling, Marble Bank Screen and Limestone Wainscot Are Features of the Interior Which Add to Its Effectiveness.



Fifty-Second Street Office of the Philadelphia Saving Fund Society, Designed by Mellor, Meigs and Howe, Architects. The name of the savings bank is flood lighted at night on two sides of the building.



Liberal Proportioning of the Interior Space Marks the Design of This Little Bank.

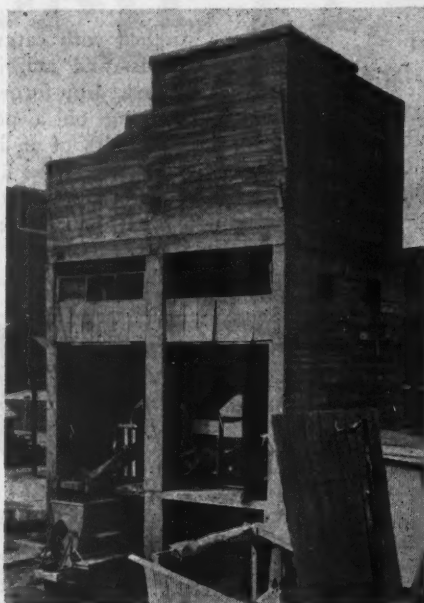
Largest Central Mixing Plant Turns Out 1000 Cubic Yards of Concrete Per Day

THE largest central concrete mixing plant in the world, that of the Ready-Mixed Concrete Company, of Pittsburgh, is capable of turning out 1,000 cubic yards of concrete in a 10-hour day.

Two mixers, one of 25 cubic yards per hour capacity and the other of 75 yards, compose the plant. The smaller unit was placed in operation in May, 1925, as an experiment. This mixer was so successful that a year later a larger unit was installed, and now Pittsburgh builders are keeping this extra large plant well occupied.

The larger mixer is housed in a concrete building arranged for efficient operation. The mixer proper is located on the second floor, so that the trucks may be loaded with concrete by gravity. The third floor carries the measuring devices and operating platform, while the top floor is filled with aggregates. Consequently, the aggregates require no lifting except the initial lifting to the high storage room.

The plant furnishes concrete for a wide variety of structures. Ready-mixed material may be provided for as many as 30 different jobs in a single day. The larger portion of



The 75-Yard Mixer Is Housed in a Four-Story, Concrete Building the Aggregates Moving from the Storage Bins at the Top by Gravity.

the concrete goes into small building construction, but frequently concrete is ordered for large projects. Several bridges, for instances, have been built with this concrete bought over the counter.

Only a rather small amount of concrete from this plant goes into reinforced construction, since fairly wet concrete is required for working around reinforcing bars. Usually sloppy concrete cannot be hauled far without segregation of materials.

The success of a central commercial mixing plant is not only dependent upon the quality of the product, but also on the reliability of the delivery service. In order to assure the customers of the ready-mixed concrete company such service a fleet of 10 five-ton trucks has been placed in operation. Eight of these trucks have three-yard bottom dump buckets which provide accurate and efficient dumping. Furthermore, this type of bucket permits the successful carrying of concrete and slumps of up to 6 or 7 inches. The Pittsburgh

company is probably the only one using this particular kind of bucket. The other two trucks are equipped with tapered bodies which are elevated by highway hoists.



The Yards of the Ready-Mixed Concrete Company of Pittsburgh, Which Have a Capacity of 1,000 Cubic Yards of Concrete Per Day, Are Said to be the Largest Plant of the Kind in the World.



Waste Prevention

Pat was hired in a lumber office. The proprietor was a young man and he decided to have some fun with the new hand, so Pat was left in charge of the office, with instructions to take all orders which might come in. Going to a nearby store, the proprietor called up the office:

"Hello! Is this the East Side Lumber Company?"

"Yis, sorr."

"Send me up 1,000 knot holes."

"What's that?"

"One thousand knot holes."

"Well, now, an' ain't that a shame! We are just out of them. Sold them all to the brewery."

"To the brewery? What do they want with them?"

"They use them for bung-holes in barrels."—*Farm Journal*.



An Ungenerous Question

This first slice of goose had been cut and the minister of the Zion Church looked at it with as keen anticipation as was displayed in the faces around him.

"Dat's as fine a goose as I ever saw, Brudder Williams," he said to his host. "Where did you get such a fine one?"

"Well now, Parson Parker," said the carver of the goose, with a sudden access of dignity, "when you preaches a special good sermon, I never asts you where you got it. Seems to me dat's a trivial matter, anyway."—*Bobolink*.



What ought to go into the waste basket often goes into the filing cabinet and vice versa.—*Wood Construction*.



A De Luxe Stenographer

"The stenographer we require," ran the ad, "must be fast, absolutely accurate, and must have human intelligence. If you are not a crackerjack, don't bother us."

One of the applicants wrote: "Your advertisement appeals to me strongly—stronger than prepared mustard—as I have searched Europe, Airopo, and Hoboken in quest of some one who could use my talent to advantage. When it comes to this chin music proposition, I have never found man, woman, or dictaphone who could get to first base with me, either fancy or catch-as-catch-can. I write shorthand so fast that I have to use an especially prepared pencil with a platinum point and a water-cooling attachment, a note pad made of asbestos, ruled with sulphuric acid and

stitched with catgut. I run with my cut-out open at all speeds, and am, in fact, a guaranteed, double hydraulic welded, drop-forged and oil-tempered specimen of human lightning on a perfect thirty-six frame ground to one-thousandth of an inch. If you would avail yourself of the opportunity of a lifetime wire me, but unless you are fully prepared to pay the tariff for such service, don't bother me, as I am so nervous I can't stand still long enough to have my dresses fitted."

Did she get the job?—*Gulf Coast Lumberman*.



True Foresight

From a provincial paper: "The other night a Parsons citizen pulled a revolver from under his pillow and blazed away at what he thought was a burglar in his room. Investigation proved that he had shot a hole through his own trousers hanging on a chair. All that saved him from killing himself was that he had removed his trousers when he went to bed."—*Epworth Herald*.



Highly Recommended

Excavation Contractor (to applicant)—Do you think you are fit for hard labor?

Hard Case—Well, sor, some of the best judges have thought so.—*Boston Transcript*.



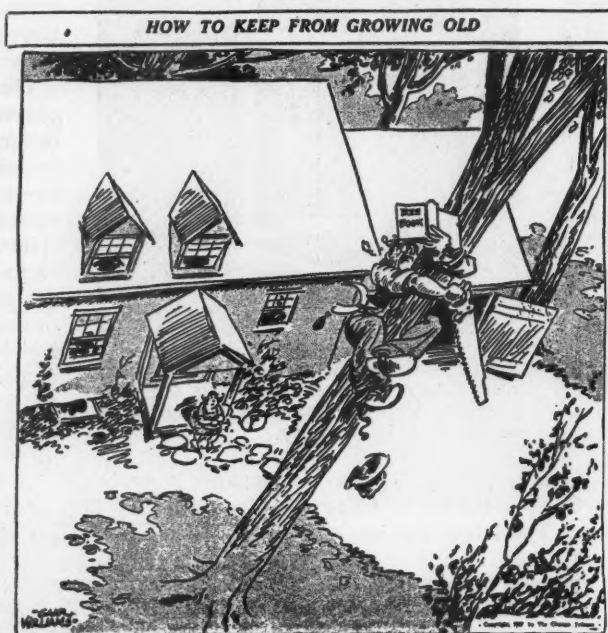
Wanted—A Good Witness

Judge Ben Lindsey of Denver has had many amusing experiences during his years as judge of Denver's juvenile court. One is related about an old colored man who was brought in and arraigned on a charge of assault and battery. Because his alleged victim was a boy under care of the juvenile probation department, the matter was brought to the attention of Judge Lindsey. The judge wanted to be scrupulously fair to the man so he said, "Johnson, do you want a lawyer appointed to defend you?" "No, sah, Jedge," he replied, "Ah doan want no lawyer, but Ah sutinly could use a couple of good witnesses, ef you got 'em."—*Book of Smiles*.



Such Language

"Papa, what do you call a man who runs an auto?" "It depends on how near he comes to hitting me."



(Reprinted by permission of the Chicago Tribune)

COLORKEED HOME PLANS

TRADE MARK
Registered in U. S. Patent Office.

"The Best Home to Build is the Home that Will Be Most Salable"

—William A. Radford

HOMES are objects of sentiment and they are also merchandise. It doesn't detract at all from the heart throb and sentimental value to know that the new homes you plan and build are also readily marketable at a good price.

A home can be individual in its appearance; but it should not be freakish. It should conform in size and cost to the standards of the neighborhood, so that if at any time it becomes desirable to sell or to rent a satisfactory deal can be made.

A great many homes are built to sell. Merchant-builders have sensed the opportunity for business in supplying the fundamental need of the people for well-built homes. They have applied the modern principle of the convenient and attractive package to the big problem of disposing of lumber and other building materials. They have found that the completed house, attractively designed, of proper size and finished with all thoughtful details, commands interest and attention and makes sales among home seekers who are too impatient to go through the long process of building.

The same features which these merchant-builders have found popular and salable should be included as well in those homes specially planned, or as we say, *sold before built*. Then later on if such homes come onto the market they find a ready sale in competition with other modern homes.

It is for these reasons that we give so much study in these

ColorKeeD designs presented here, to the matter of distinctive and attractive exteriors, well arranged rooms of the average number and size, and the provision for equipment and conveniences to make these homes thoroughly modern.





The JAFFREY

ColorKeeD Floor Plans on the Opposite Page Show
Efficient Arrangement of This Pure Colonial Home

FOR all around satisfaction and livability no style of domestic architecture surpasses the Colonial. With its simple rectangular outline and entire absence of needless features which in other styles are added solely for architectural effect, the Colonial achieves maximum economy and there is little about such a house to become dilapidated or out of style through the years.

The Colonial design illustrated here is 24x35 feet, arranged as a seven-room home with central reception and stair hall. A large living room and dining room and convenient kitchen are on the first floor and four well arranged bedrooms and bath are on the second floor. Notice that three of these bedrooms are large corner rooms with the much desired cross ventilation and

light from two sides. The fourth bedroom is smaller. With a house of this type there is also considerable space on the third floor under the straight gable roof. Where space is at a premium and a regular stairway to the third floor is not desirable an ingenious folding disappearing stair can be installed in the ceiling of the second floor hall as indicated in the accompanying ColorKeeD Plan. This item of special equipment together with the other recommended items which make of this a model up-to-date home are designated by the small numbered circles and explained in the "Key to Equipment." Home builders should figure on all of these worth-while items, providing for them either at the time the home is built or to be installed later.



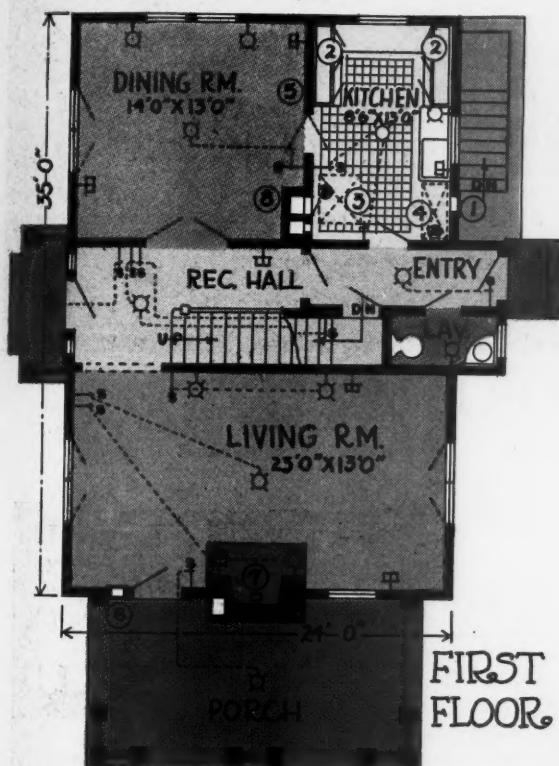
Suggestion for a Garden Gate

Key to Equipment for "The JAFFREY"

- | | |
|-------------------------------|---------------------|
| ① Ventilating Fan | ⑭ Coal Chute |
| ② Kitchen Cabinets | ⑮ Laundry Drier |
| ③ Range | ⑯ Ironing Machine |
| ④ Electric Refrigerator | ⑰ Washing Machine |
| ⑤ Thermostat | ⑱ Laundry Stove |
| ⑥ Built-in Mail Box | ⑲ Electric Panel |
| ⑦ Fireplace Throat and Damper | ⑳ Heating Plant |
| ⑧ Incinerator | Weather Strips |
| ⑨ Efficient Wardrobes | Storm Sash |
| ⑩ Disappearing Stairs | Screens |
| ⑪ Tub Shower | Lighting Fixtures |
| ⑫ Water Softener | Convenience Outlets |
| ⑬ Hot Water Supply | Water Supply System |
| | Radiant Gas Heaters |
| | Casement Windows |
| | Dish Washing Sink |

KEY TO ELECTRICAL SYMBOLS

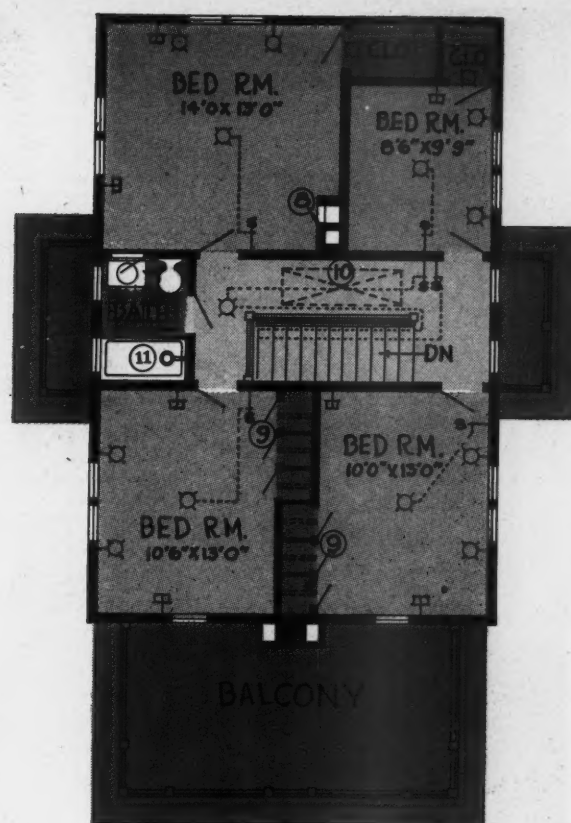
- CEILING OUTLET □ FLOOR RECEPTACLE
 □ BRACKET OUTLET ● SPECIAL OUTLET
 □ CONVENIENCE OUTLET -S- SWITCH



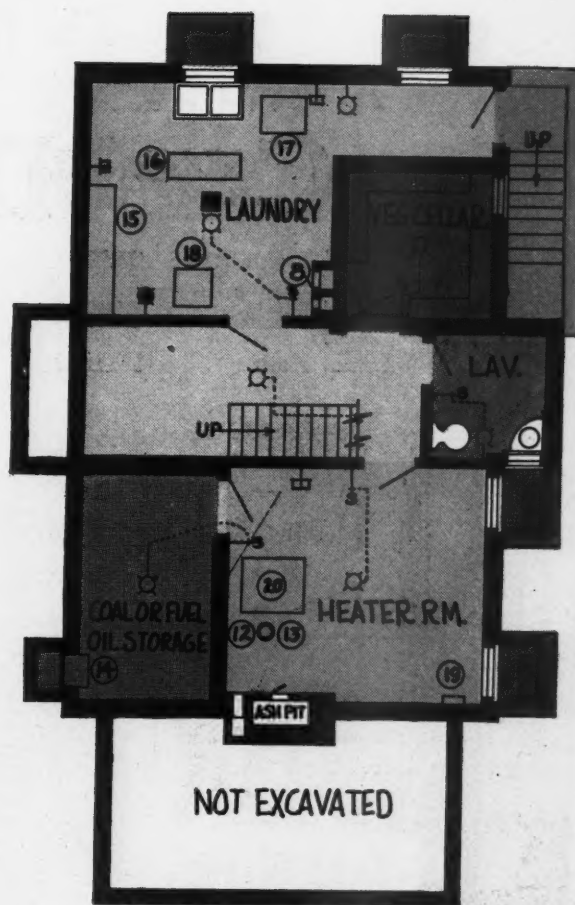
FIRST FLOOR

COLORKEED
HOME PLANS

- | |
|---------------|
| Living Room |
| Dining Room |
| Kitchen |
| Pantry |
| Halls |
| Closet |
| Bed Room |
| Bath and Lav. |
| Porch |
| Roof |
| Basement |
| Fruit Cellar |
| Fuel Room |
| Stairs |



SECOND FLOOR



BASEMENT

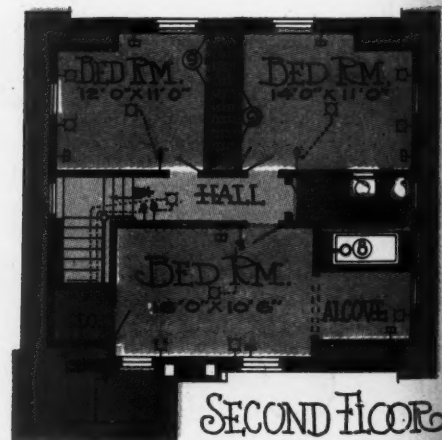
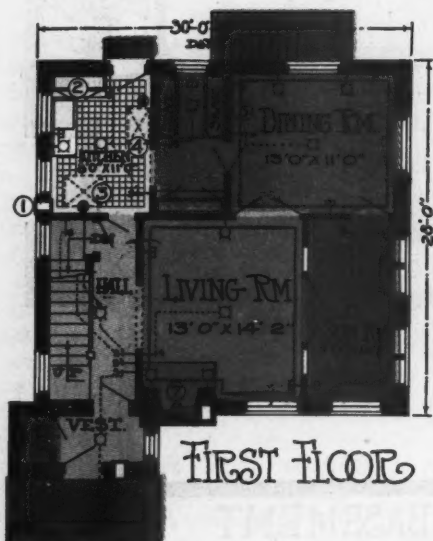


The JAMESPORT

A TYPICALLY English design in stucco with antique brick chimney. The house is 28x30 feet and contains seven rooms and bath.

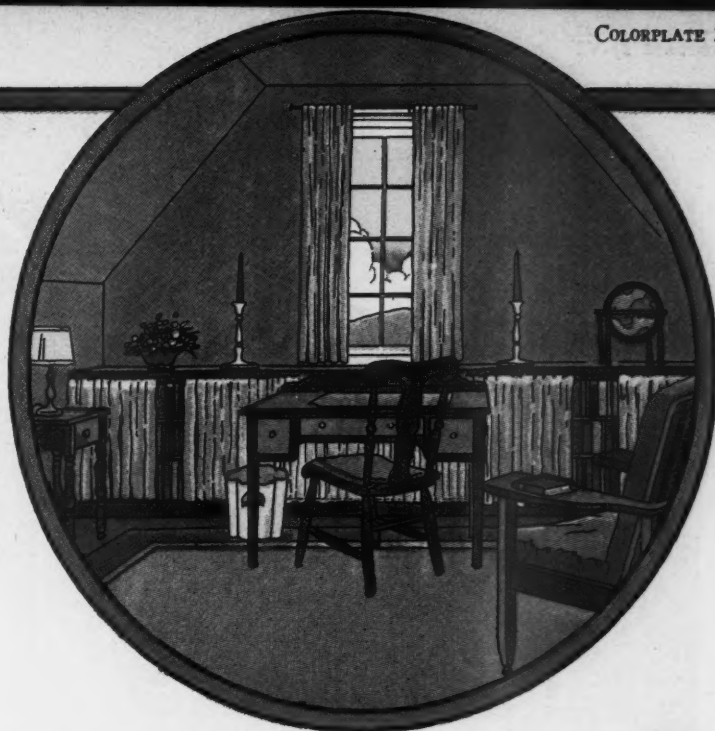
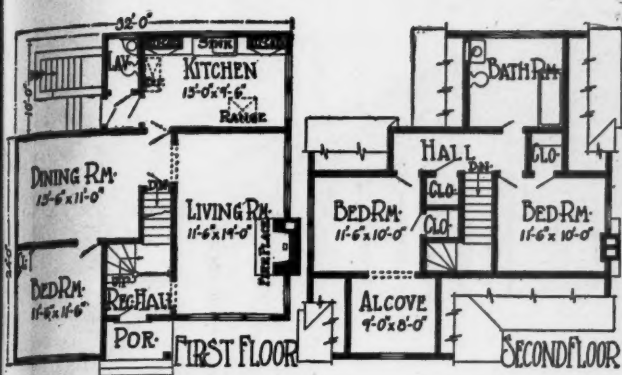
COLORKEY
HOME PLANS
TRADE MARK

	Living Room		Closet
	Dining Room		Bed Room
	Kitchen		Bath and Lav.
	Pantry		Porch
	Halls		Roof



Key to Equipment

① Ventilating Fan	⑨ Efficiency Wardrobe	Coal Chute
② Kitchen Cabinet	Weatherstrips	Heating Plant
③ Range	Storm Sash	Water Supply System
④ Electric Refrigerator	Screens	Hot Water Supply
⑤ Thermostat	Lighting Fixtures	Water Softener
⑥ Built-in Mail Box	Convenience Outlets	Radiant Gas Heaters
⑦ Fireplace Throat and Damper	Electric Panel	Casement Windows
⑧ Tub Shower	Washing Machine	Dish Washing Sink
	Clothes Drier	



The JARDINE

BELOW we present an unusual design of English lines containing six rooms and bath. In many homes the downstairs bedroom is wanted and here is a design which gives this feature in a very satisfactory way. This downstairs bedroom nicely supplements the two large bedrooms on the second floor. The other rooms in this house are laid out most effectively. It makes a very home-like home.

In the interior color sketch is a suggestion for handling the front alcove part of the bedroom as a library or study. Such a room affords great opportunities for individuality and adds to the interest of the home.



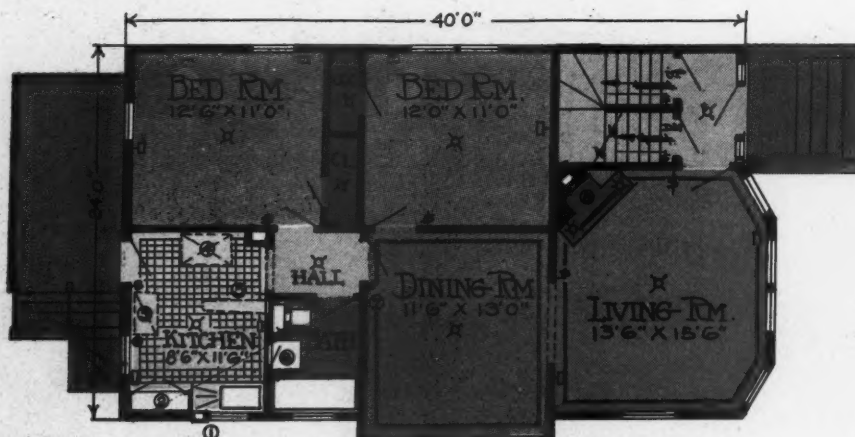


The JAVA CENTER

THIS is a practical two-apartment house or duplex, five large well arranged rooms being found on each floor. The width is only 24 feet permitting light and fresh air on all four sides, even on a narrow city lot.

COLORKEED
HOME PLANS
TRADE MARK

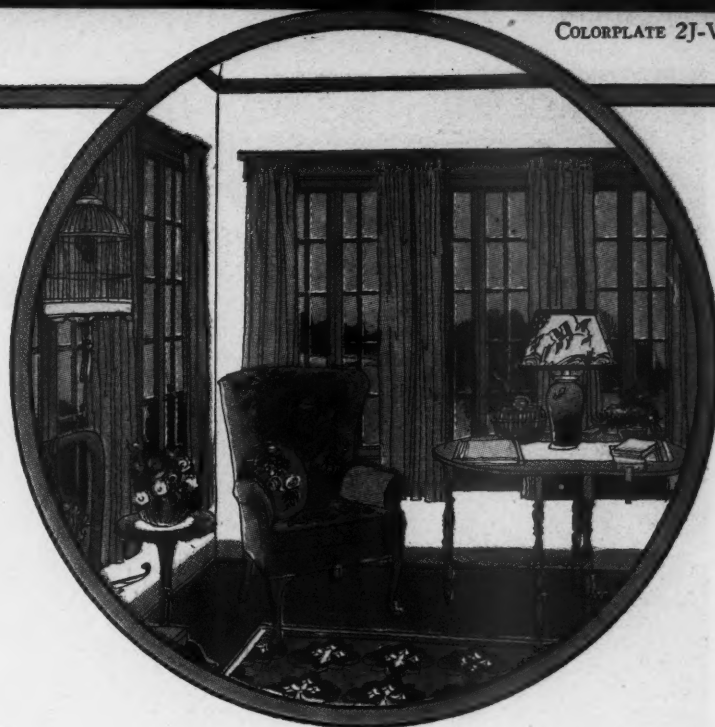
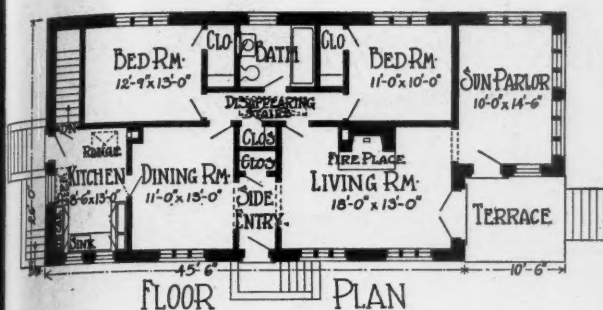
	Living Room		Closet
	Dining Room		Bed Room
	Kitchen		Bath and Lav.
	Pantry		Porch
	Halls		Roof



-TYPICAL FLOOR PLAN-

Key to Equipment

- ① Kitchen Ventilator
- ② Kitchen Cabinet
- ③ Electric Refrigerator
- ④ Range
- ⑤ Built-in Ironing Board
- ⑥ Bathroom Cabinet
- ⑦ Thermostat
- ⑧ Fireplace Throat and Damper
- ⑨ Built-in Mail Box
- Weatherstrips
- Storm Sash
- Screens
- Lighting Fixtures
- Convenience Outlets
- Electric Panel
- Washing Machine
- Clothes Drier
- Coal Chute
- Heating Plant
- Water Supply System
- Hot Water Supply
- Water Softener
- Radiant Gas Heaters
- Casement Windows
- Dish Washing Sink



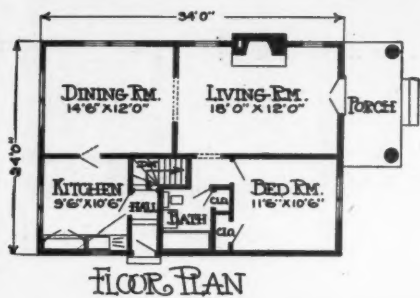
The JERSEY CITY

A COMPACT well built and well designed brick bungalow 26 feet wide by 45 feet, 6 inches deep, plus the sun parlor at the front which adds 10 feet, 6 inches. This home has a thoroughly modern look. It is economical to build and is a popular seller.

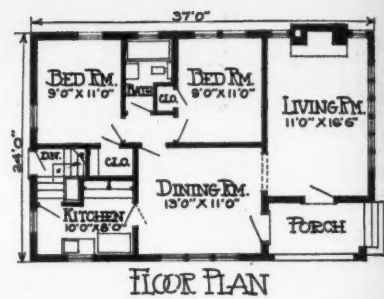
The side entrance is the one generally used, reserving the front terrace which opens out of the living room and sun parlor as a private outdoor sitting room. The side entry gives convenient access to the living room or the dining room and through to the bedrooms. This is an arrangement well liked in many private homes.

The interior sketch shows how attractively the sun parlor with its abundance of windows can be equipped.





The JESSUP
 ABOVE and to the
 left this four-room
 cottage 24x34 feet.



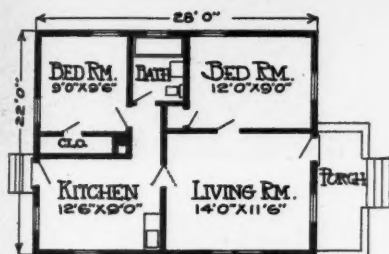
The JEWETT
 BELOW and to the
 right this five-room
 cottage 24x37 feet.





The JOPLIN

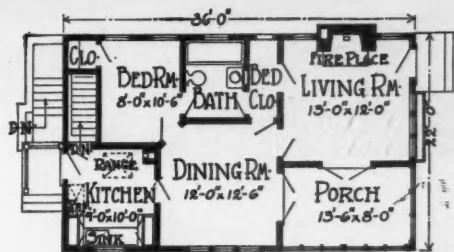
ABOVE and to the left a four-room home 22x28 feet.



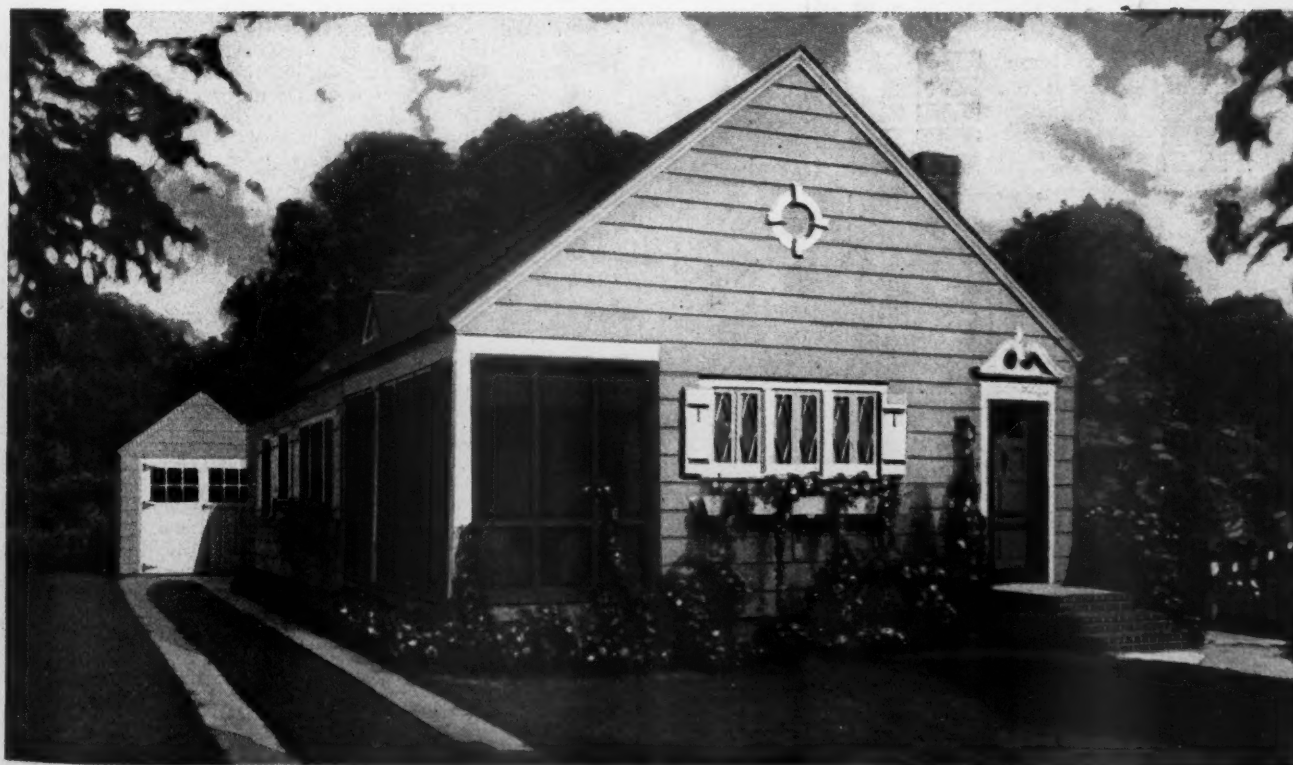
FLOOR PLAN

The JOSEPH

BELOW and to the right a narrow lot home of four rooms and enclosed porch 22x36 feet



FLOOR PLAN

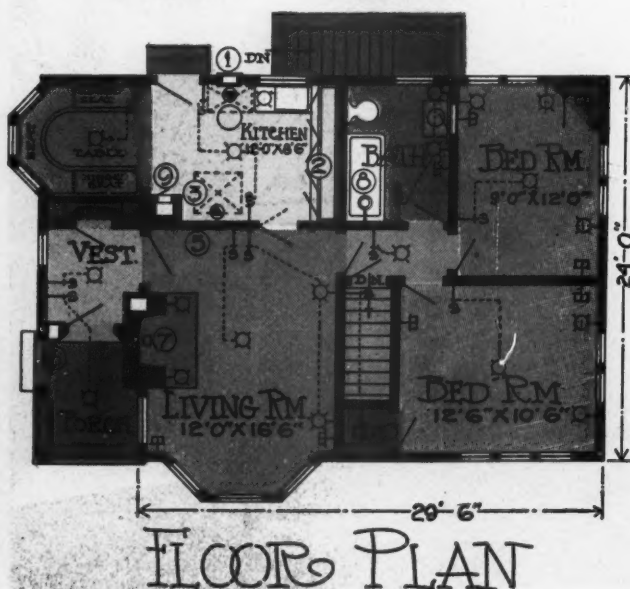




COLORKEED HOME PLANS

TRADE MARK

Living Room	Closet
Dining Room	Bed Room
Kitchen	Bath and Lav.
Pantry	Porch
Halls	Roof



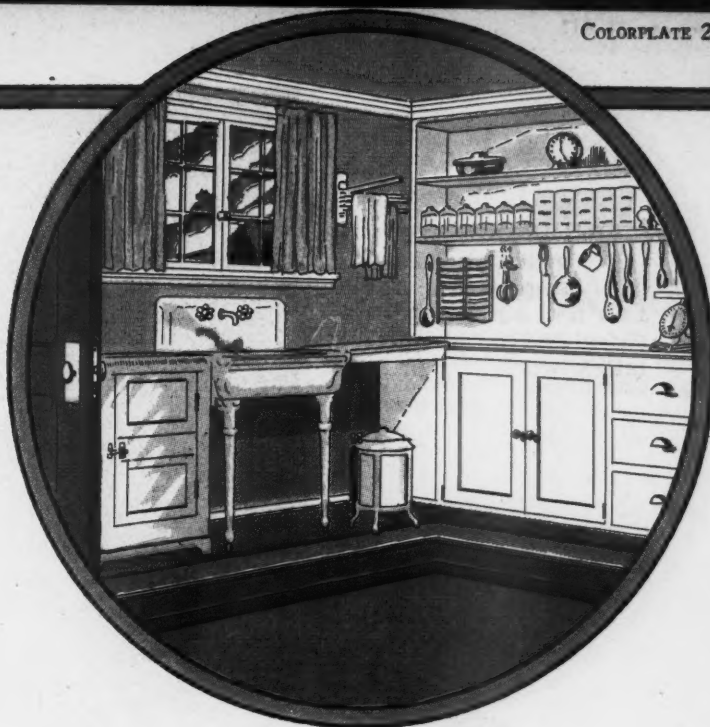
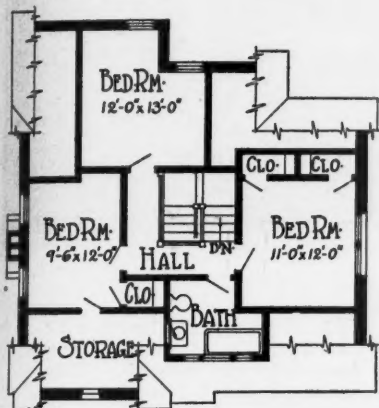
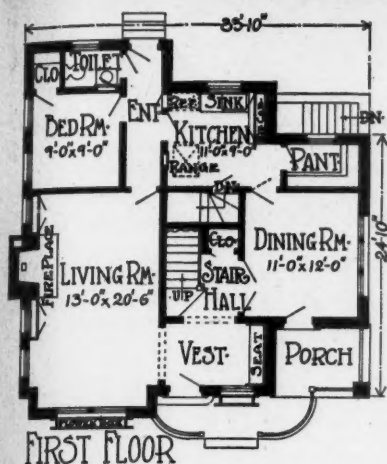
The JUDITH

A FRENCH cottage of most delightful lines is presented above and the very satisfactory room arrangement is illustrated in the ColorKeeD plan below. This five-room cottage is given distinction and a pleasing cheerfulness by the big full length windows grouped so attractively. The fine bay at the end of the living room and the miniature Norman tower at the back corner containing the breakfast nook are unique features of this design.

The construction of this home might well be stucco over concrete blocks or other masonry units so as to make a permanent, substantial wall in keeping with the solid impression and atmosphere of this design.

Key to Equipment

① Ventilating Fan	Convenience Outlets
② Kitchen Cabinet	Electric Panel
③ Range	Washing Machine
④ Thermostat	Clothes Drier
⑤ Built-in Mail Box	Coal Chute
⑥ Fireplace Throat and Damper	Heating Plant
⑦ Tub Shower	Water Supply System
⑧ Incinerator	Hot Water Supply
Weatherstrips	Water Softener
Storm Sash	Radiant Gas Heaters
Screens	Casement Windows
Lighting Fixtures	Dish Washing Sink

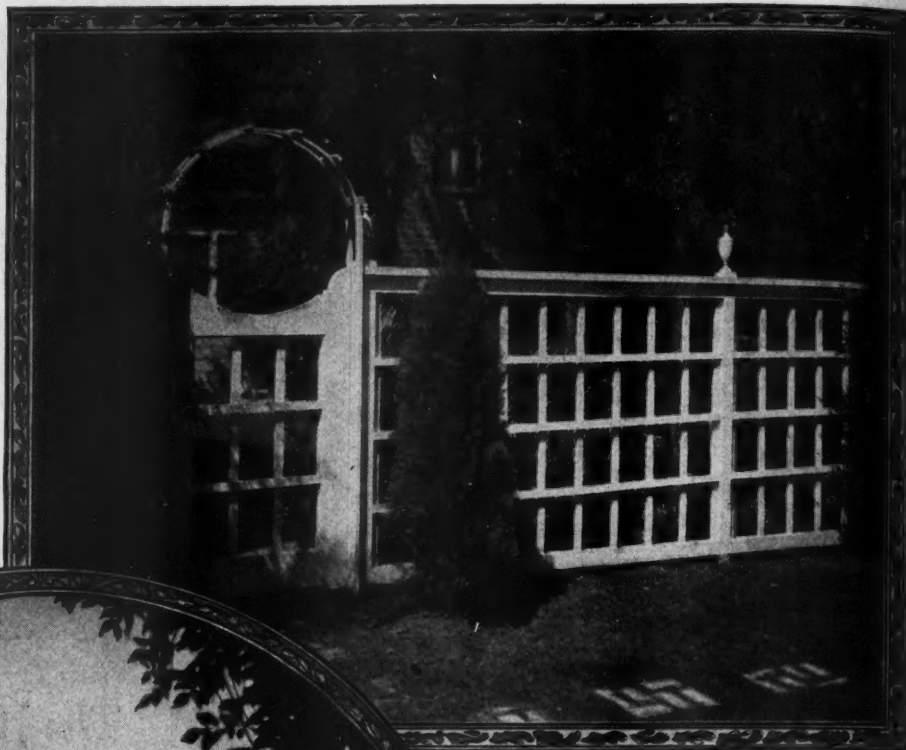


The JUNCTION

AN attractive little brick home is illustrated below and the floor plans to the left show how well arranged the seven rooms are. There is a small bedroom with adjacent toilet on the first floor in addition to the three large sleeping rooms upstairs. The large living room and the dining room with its open porch are well admired features of this plan. A glimpse of the efficient kitchen is shown above.



THREE timely graceful garden suggestions for furniture, gates and ornamental lattice work.



THE pieces illustrated here are easy to build if you have the right materials. The lumber dealer has special stock appropriate for lattice work and ornamental fencing. A few dollars will go a long way in buying this class of building material.





To the left—

The JUDY GARAGE

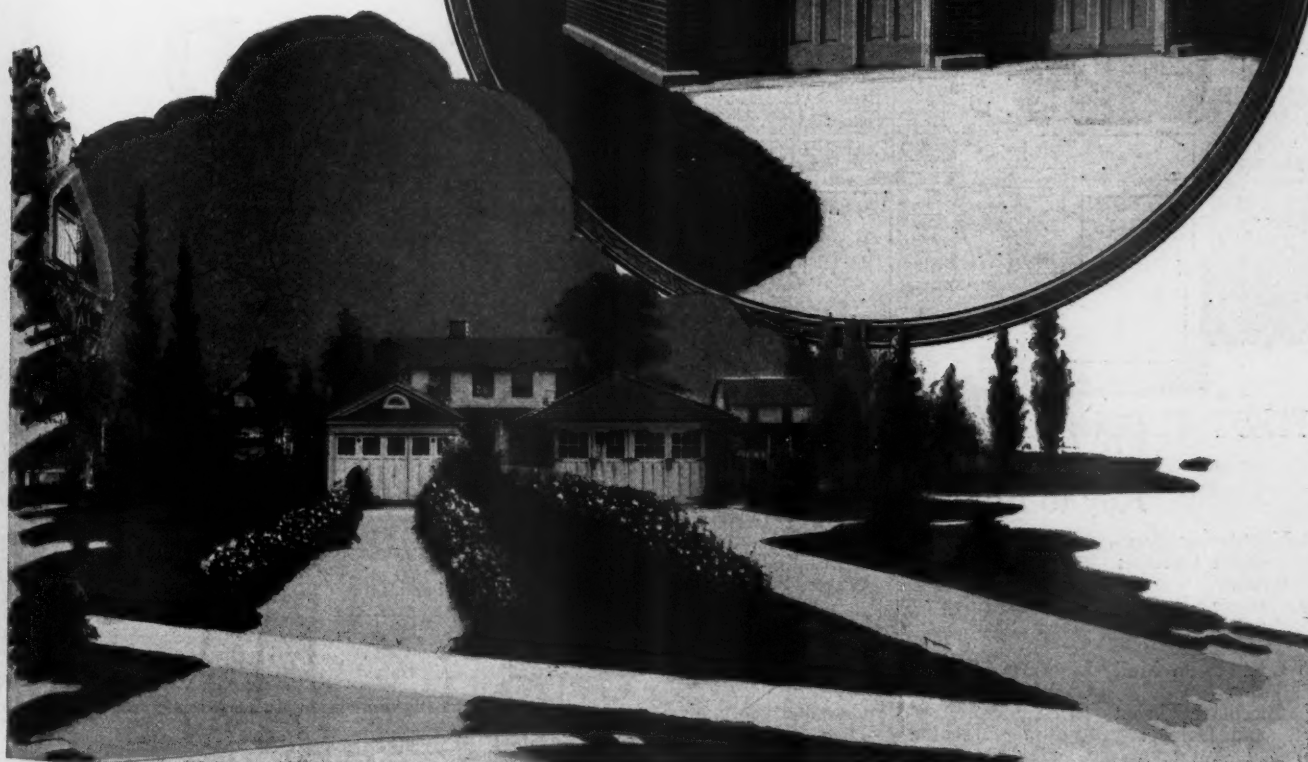
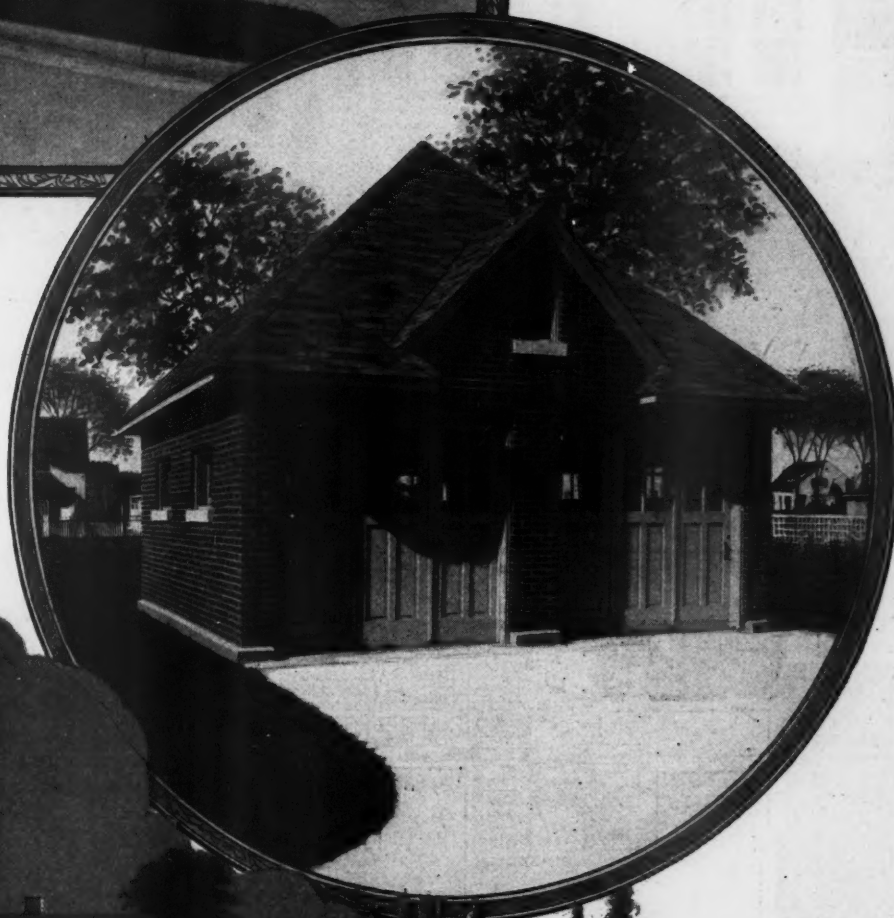
A BUSINESS-L I K E
two-car garage of
stucco with asbestos shingled
hip roof.

To the right—

The JUNIOR GARAGE

A TWO-CAR brick garage
with ornamental roof.

Below is a suggestion for
two adjacent garages with ap-
propriate planting of shrubs
and flowers.

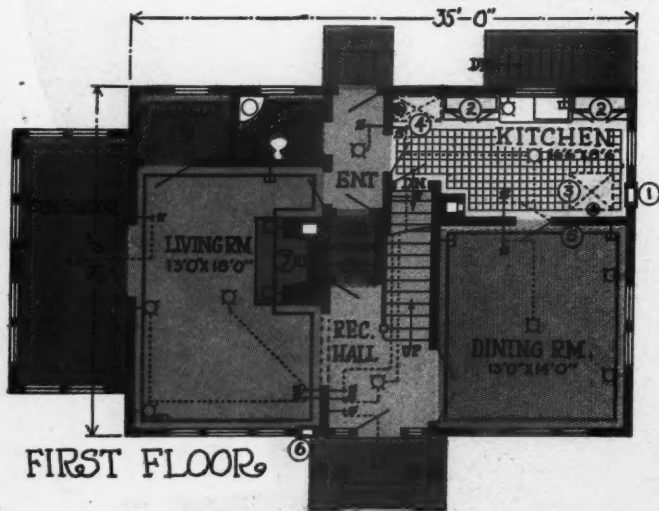




The JUNIUS

A LARGE roomy home of the square hip roof type. Seven large rooms and bath and downstairs lavatory are provided. Overall dimensions are 24x35 feet not counting the sun parlor.

The balcony over the sun parlor with its striped awning and flower boxes is a delightful addition to the second floor.

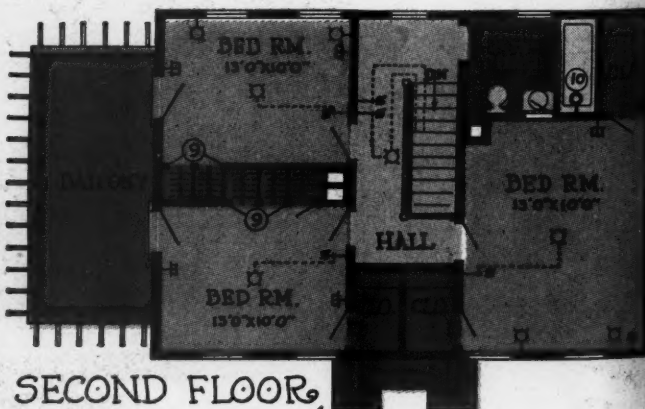


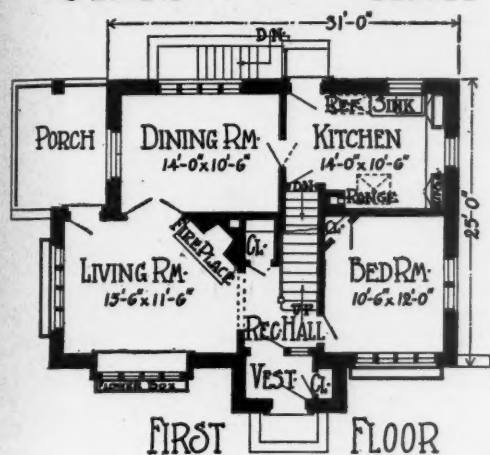
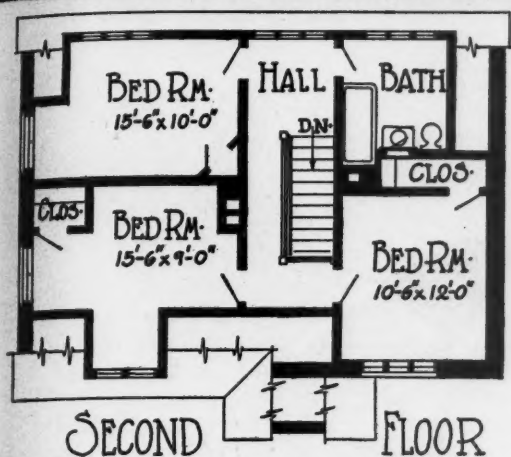
COLORKEED HOME PLANS

Living Room	Closet
Dining Room	Bed Room
Kitchen	Bath and Lav.
Pantry	Porch
Halls	Roof

Key to Equipment

- | | | |
|----------------------------------|-----------------------------|--------------------------|
| ① Ventilating Fan | ⑨ Efficiency Ward-
robes | Coal Chute |
| ② Kitchen Cabinets | ⑩ Tub Shower | Heating Plant |
| ③ Range | Weatherstrips | Water Supply Sys-
tem |
| ④ Electric Refrig-
erator | Storm Sash | Hot Water Supply |
| ⑤ Thermostat | Screens | Water Softener |
| ⑥ Built-in Mail
Box | Lighting Fixtures | Radiant Gas Heat-
ers |
| ⑦ Fireplace Throat
and Damper | Convenience Outlets | Casement Windows |
| ⑧ Bed Closet | Electric Panel | Dish Washing Sink |
| | Washing Machine | |
| | Clothes Drier | |





The JUNO

HERE is a compact, substantial home of modern English lines containing seven rooms and bath. A downstairs bedroom is a feature that is often wanted; for this room could be nicely used as a library, office or study. Three large bedrooms are found on the second floor.

In the color sketch above is a suggestion for window treatment and furnishings appropriate to this design.



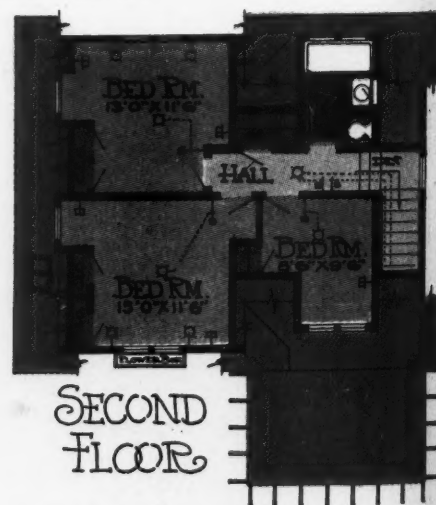
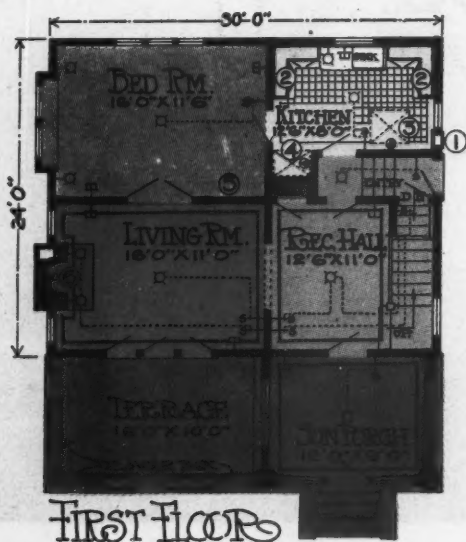


The JUTLAND

HERE is a popular Eastern design suggestive of the Colonial yet with more elaboration of detail. Size is 24x30 feet, making this design available for a small lot.

COLORKEED HOME PLANS TRADE MARK

	Living Room		Closet
	Dining Room		Bed Room
	Kitchen		Bath and Lav.
	Pantry		Porch
	Halls		Roof

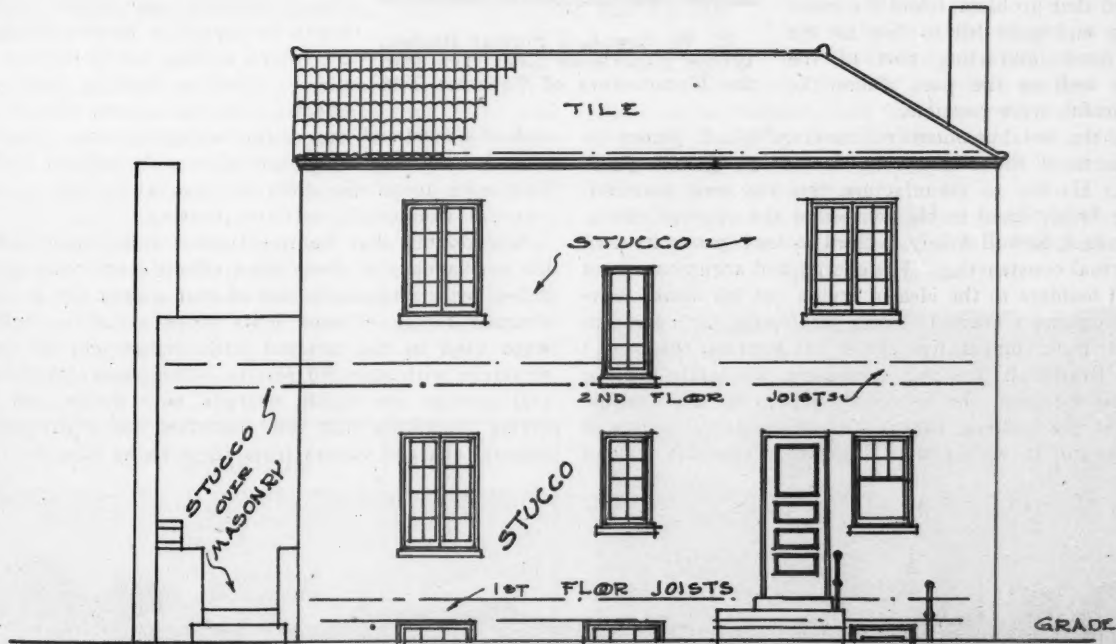


Key to Equipment

① Ventilating Fan	Storm Sash	Heating Plant
② Kitchen Cabinets	Screens	Water Supply System
③ Range	Lighting Fixtures	Hot Water Supply
④ Electric Refrigerator	Convenience Outlets	Water Softener
⑤ Thermostat	Electric Panel	Radiant Gas Heaters
⑥ Fireplace Throat and Damper	Washing Machine	Casement Windows
Weatherstrips	Clothes Drier	Dish Washing Sink
	Coal Chute	



LEFT - SIDE - ELEVATION



REAR - ELEVATION

SCALE $\frac{1}{8}$ "-1'-0"

SHEET-NO-4.

With These Two Additional Elevations the Builder Is Equipped To Construct a Duplicate of Our Front Cover Home, Producing a House in a Style of Undoubted Popularity.

What Is the Building Trend?

H. W. Sewall of Benton Harbor, Michigan, Gave Up Banking for Building. Basing His Policy On What He Believes is the New Trend in Building, He Has Achieved Outstanding Manufacturing Success

By J. WIDMAN BERTCH

H. W. SEWALL, of Benton Harbor, Michigan, approached building via the banking route. As a banker, he was in a position to weigh the merits of all kinds of building. He realized the enduring value of permanent construction, wondered why more people did not use it, speculated on the possible development of a lower cost permanent construction unit.

People discussed many building problems with Sewall. "Why," they asked, "don't builders develop a type of masonry construction that can be used economically for foundations, walls, and interior partitions of average buildings? Why do concrete buildings have to be dull and gray and uninteresting looking? Why doesn't somebody do something with concrete to make it an attractive building unit?"

"Why not?" thought Sewall. "When everybody is waiting around for somebody to get busy and do something, why shouldn't I go ahead and see what can be done?"

Sewall saw clearly enough that high shipping costs on permanent materials pointed toward local manufacture as a solution to that problem. And the manufacturing end appealed to him as the biggest, most interesting part of the game—as well as the part where the biggest profits were possible.

Noting the establishment of concrete block plants in various parts of the country, he decided to start a plant in Benton Harbor to manufacture this low cost material.

Having firmly fixed in his own mind the positive merits of his product, Sewall wisely decided to let it prove its own case in actual construction. His energy and arguments soon won local builders to the idea of trying out his ideas. Several buildings were erected. Some interesting facts came to light. Accurate comparative check was kept on costs.

In the Brammall Building, housing a wholesale heating and supply concern, the owner consented to use Duntile throughout the building except for one basement end wall which was put in with poured concrete. The side wall of

this tile—100 feet long—cost in actual construction but \$4.00 more than the 50-foot end wall of poured concrete. The builders, P. H. Lorenz Company, attributed this not only to the low cost of the unit, but also the ease and speed with which it could be laid.

This tile was used in the walls and partitions of the Brammall Building with such signal economy and success that bankers, after carefully appraising the building according to their own standards, readily offered to loan on it an amount which was actually in excess of the construction cost. Naturally, the Lorenz people were pleased and impressed. They immediately started out to include this block in their bids—indicating deduction of so much if it were used.

As business developed, Sewall became more and more interested in the color possibilities of his product from an architectural standpoint. He had installed a mat glazing outfit capable of producing 40 color and texture variations and he began to sell his ideas in this connection to the trade.

Soon colorful store buildings, garages, filling stations and other structures began to appear in Benton Harbor and St. Joseph making use of the mat glazed tile to produce striking and unusual effects. The mat glazed tile produces a

wall of a most rich and distinctive appearance. The texture is varied and slightly rough, alive with brilliant highlights. The color tones are different than any other permanent material, wonderfully soft and pleasing.

Any doubts that Benton Harbor folks have had about the permanency of these color effects were completely dispelled by a remarkable use of mat glazed tile in the new Premier Hotel. Glazed units in an attractive buff shade were used in the mineral bath department of this fine structure with splendid results. The waters of these mineral springs are highly charged with active and health-giving chemicals that few materials can withstand. The mineral charged vapors from these baths have left the tile



H. W. Sewall, a Former Banker, Whose Experience Lead Him Into the Manufacture of Concrete Tile.



The Sewall Plant in Benton Harbor, Michigan, Is Running Full Time to Take Care of the Orders on Books, 75 Per Cent of Which Come Unsolicited.

absolutely unchanged and unharmed in any way.

Duntile was also used in the walls of this big, beautiful building—both architects, builders and owner being united in the opinion that the result was a most substantial structure at marked savings in cost.

Sewall's enthusiasm for his product and his knowledge of its application is most stimulating. We went over to the site of the new \$200,000 Congregational Church where mat glazed tile is being used in the large auditorium and gymnasium in the basement of the building. Here the glazed veneer tile was being laid right along with the construction of the foundation—an unusual procedure, but practical, because, as Mr. Sewall points out, no exposure



The Mineral Baths of the Premier Hotel, Benton Harbor, Are Lined with Mat Faced Tile Which Has Perfectly Withstood the Effects of the Minerals.



The Congregational Church at Benton Harbor with the Glazed Tile, Gymnasium Walls Being Laid Before the Upper Part of the Building Has Been Started.

to weather can harm this surface in the slightest. For this job Sewall developed a glazing of attractive color and smooth texture—the usual rough texture wall being unsuitable for a gymnasium where active games are played. The builder is the M. W. Stock Construction Company, of Benton Harbor.

From this interesting job we drove over to St. Joseph, where James Clark, owner, met us at the site of a fine six-store building which emphasizes every virtue of this construction. The architect here, H. E. Harper, is mightily pleased with the economies and advantages he has worked out on Sewall's suggestions.

Sewallisms

"The biggest thing in building today is the development of low cost permanent materials."

"If a manufacturer has a real story to tell, progressive architects and builders will back him to the limit."

"So great is the interest in permanent building materials that 75 per cent of my business comes unsolicited."

"The only way to ride on the crest is to steer by the trend of the times."

"Every building sign post today points to greater use of color in permanent materials."

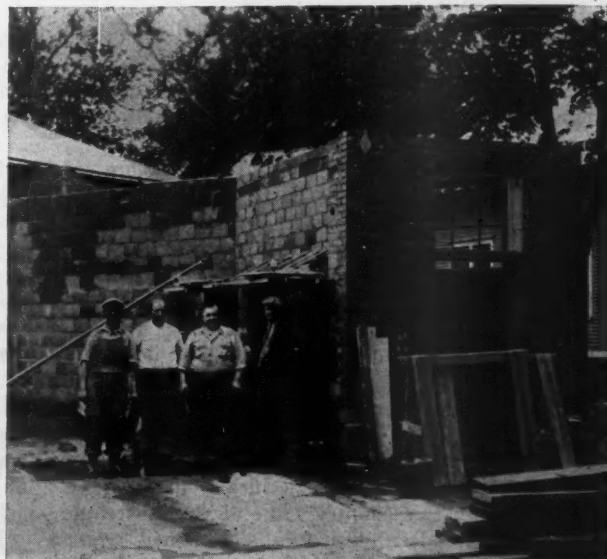
"Permanent masonry construction is a high grade security for loans. Anyone in the banking business finds that out soon enough."

The stores are all of this construction from cellar to roof. The walls and partitions are laid up in a triple air-space construction which forms ideal insulation against sound and weather. Clark, the owner, was more than pleased with the results. The ease of laying particularly impressed him. "Do you know," he told us, "that that basement wall went so fast that the workmen were taking the tile right off the truck and putting them in the wall and they didn't truck them up fast enough to keep the masons busy? My check-up showed that one workman laid 1,526 eight by eight blocks in two days. That's equivalent to 7,000 brick."

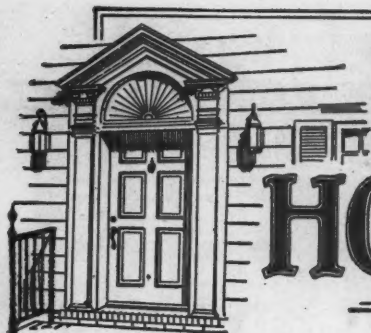
A school, several homes, and two garages are other jobs that we visited. And these are only a fraction of the activities that Mr. Sewall characterizes as evidence that the building trend is toward permanent construction and more colorful architecture.

"I preach color and permanence to everybody I meet," he says, "and yet the basic trend is so much greater than

(Continued to page 136)



A Six-Store Building, in St. Joseph, in Which the Tile Construction Developed Many Economies.



DETAILS OF HOME BUILDING

The Change in England

By V. L. SHERMAN,
Lewis Institute of Technology

THE gradual change in styles, Norman, Early English, Decorated, and Perpendicular, carry up to the time of the art of printing. Then the craftsmen, invited from Italy, began oddly enough on the tomb of the penurious Henry VII. The following years were rife in the new spreading of ideas, the separation from Rome, and the consequent diversion of funds from the church. These funds together with the growing trade profits from the east were turned to the building of palaces, mansions, and manor houses.

With the Italian Renaissance at its height, the English were trying to stiffen their elastic, comfortable sort of architecture, with its abundance of clever small work, to a very inelastic, symmetrical system. About as pleasant as winter boots to a farmer boy. So the English began with tombs and Henry VII and Cambridge. Rudyard Kipling's "The Wrong Thing" gives an intimate picture of this beginning of another era and the working out of architecture without an architect. Architects were unknown. The surveyor made the layout and the contract or contracts were let to master builders.

Now times had changed from hazardous to fairly safe. The towers dissolved to lodge gates and gate-houses. Windows enlarged themselves, and courts and terraces were thought of. The manor house became the center of real living with its gradual growth through the four styles previously mentioned.

The classic idea is taking hold in England at the end of Henry's reign. In Fig. 1 the old flat pointed arch which is so strongly English is capped with a classic drip-mould. And a bay tops it. The English find they cannot rearrange their houses for a comprehensive classical style, so they begin gradually with a door or a gate or a porch. And coming to Fig. 2 we have a very truthful result of the time, a roomy bay and gable with a formal door.

In Figs. 1, 2, 3, and 4, the old and the new are combined and are, I believe, typical of Early English as the term is commonly known. To reiterate, printing was coming into use. Books and drawings were becoming more common; the native craftsman was becoming less of an artist, architecture was becoming a profession, but not strongly enough to prevent mere copying. Some authorities tell us that it was line for line Italian at the last. The interesting part came at the start.

At the start there were arches over windows and doors, round, Gothic and flat pointed. For our particular use the last is the marker. The small triangles or spandrels at either side of the point are specifically fit for decoration, and there are in this country some of the most interesting specimens by modern designers. Mullioned windows of the flat point type are highly Tudor while the rectangular lights in tiers are Elizabethan. The Gothic are reserved for the ecclesiastical.

Paneling was the most common wall face in use. Carving of all sorts was indulged with a partiality for the perpendicular such as linen-style, like folded cloth. Plain paneling was the ordinary under moulded ceilings, the Italians were great in plaster work. The Grecian, through Italian hands, had spelled curves and symmetrical forms. In Fig. 6 is shown a fireplace built to a corner chimney.

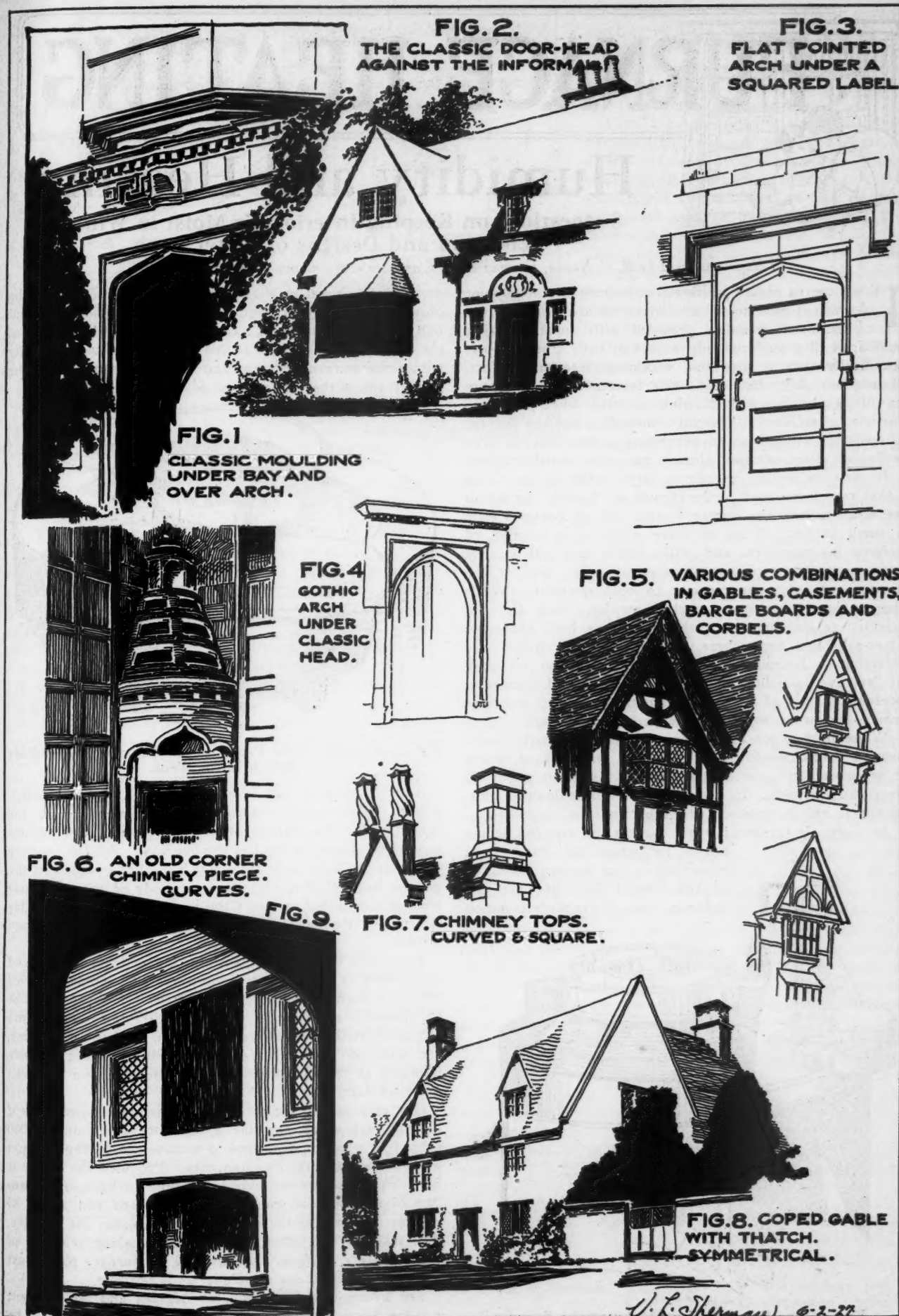
Curves to give you quirks have come from the far east, and perhaps the Moors in Spain had a hand in the notes of architecture in Italy. (They certainly had in other matters.) Curves rampant are found in many instances. There are plenty at the hearth, and in Fig. 6 are some at the chimney-top. It is rather more picturesque when fittingly applied than the precise cap next to it. To put you at ease perhaps it is well to say that in England you can find full Grecian columns from base to a portion of entablature as a chimney cap supporting a further column of smoke. They surely did go the whole hog at times.

The early English knew that the best in fireplace architecture was hidden to the eye. In Fig. 9 we are back to the flat-pointed arched moulding, a broad hearth and plenty of room for enjoyment. Most fortunately this is and always was the native type. It may be plain or elaborate, but it must be hearty. There is one by Sir Christopher Wren at Windsor, all in marble, a beautiful thing, and pure English in size. Just a comment here: The fireplace for a large living room must not be confused with the English coal grate which is common to every room in the house. The latter is smaller and necessarily so.

In Fig. 9 no paneling is shown. Paneling is not to be used indiscriminately, and in private homes had better be confined in use, say to dining rooms or dens or topping shelves in a library. It needs constant care, or should have, to insure the beauty which comes with time, and it is too fine for promiscuous use. Paneling has a richness that is deserved by few people.

The old English or Saxon verge board is another marker. This, as shown in Fig. 5, was usually decorated with the half timbering backed by stucco or pattern brick work. Gables are gables and with care can be made handsomely. Details in wood finials and pendants were common then but show a loaded outline today. The gables as shown in Fig. 5 are in brick or stucco with a slate or tile roof. Just below is another type in Fig. 8. In the stone country this is just as common. The lines are more severe perhaps and the tendency less warm.

To summarize Early English can be made as warm as wood by not indulging in the classic touch, or it can be made a charming combination as it was very often in the time of Elizabeth, or it can be made fairly close to the classic in outer form with the old English comfort within.



Illustrating the Development of New Ideas in the Architecture of Early England.



FURNACE HEATING

Humidity and Heating

Suggestions on Keeping Interior Air Moist in Winter.
Location and Designs of Water Pans

This Department by R. C. Nason, Heating Expert, appears every month in American Builder

IF we are to regard heating plants from the standpoint of efficient mechanical appliances we are forced to the conclusion that unless provided with moisture-giving auxiliaries they perform only a part of their true purpose, specifically that of providing maximum interior comfort. Nature has ably attended to this feature for us outdoors by filling the air with invisible (except when it rains) particles of moisture. We call it humidity, and the amount of moisture present varies according to nearness to large bodies of water, seasons, altitude and other considerations.

In Arizona we say the air is "dry," while in the Great Lakes region we refer to the climate as "humid," by which we mean that in the former locality the air contains only a small portion of the moisture which it is capable of holding in suspension, and in the latter case that a fairly good high degree of saturation exists. The warmer the air the greater is its capacity to hold moisture. When the maximum has been reached we have rain and the scientists state that the "dew point" has been exceeded. Over-saturated atmosphere sheds its surplus water. In referring to humidity in heating it is common to speak of "relative humidity." This is the degree of saturation present, as related to the maximum amount of moisture which the air at any given temperature can hold.

When outside air leaks into a building through cracks around doors, windows, through the materials of which it is constructed, its temperature is raised to about 70 degrees Fahrenheit. Its moisture content remains the same, however, unless some is added by artificial means.

In warm-air furnace heating moisture is supplied at the heater by means of water pans placed within the furnace casing or in the bonnet directly over the radiator. Two of the more common

designs are shown in Figs. 1 and 2 from which it will be observed that both are equipped with an outside tank and ball float which maintains a constant water level in excess of the evaporation. Located as this type of moistener is directly within the warm-air stream and at the hottest part of the plant it offers the best manner of evaporation.

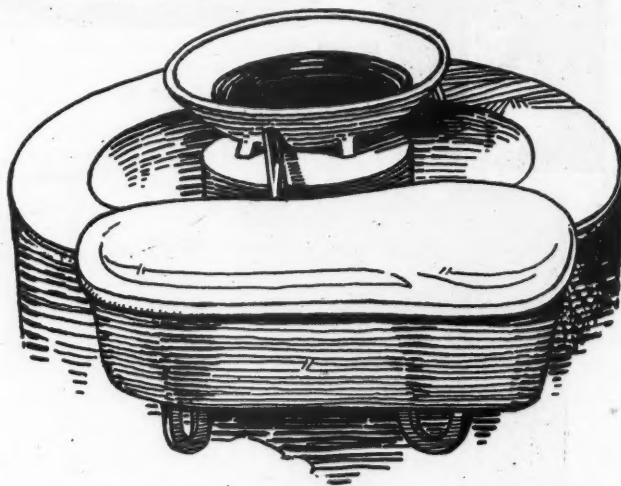


Fig. 2—Another Dome Pan Type of Automatic Humidifier Which Is Excellent.

Another type of pan, shown in Fig. 3, is the crescent design. This usually extends one-half way around the heater within the exterior sheet metal casing. Its surface is situated above the level of the fire door. Another variety of pan is the plain tank style which is filled by hand at the side or front of the heater and the body of the receptacle rests in the casing at about the middle of the plant. This is probably the most commonly observed pattern, but least efficient.

Tests have demonstrated that the higher the pan is placed the greater is its evaporative power. The temperature of the air is highest at its bonnet and the velocity of flow of the warm-air supply greatest. As humidifying requirements are substantial the best designs of pan, as they exist today, are none too efficient in providing 40 per cent relative humidity at 69 degrees temperature, the condition of maximum comfort.

One may gather a good idea of moisture requirements if he will take as an example a residence containing 30,000 cubic feet which it is desired to maintain at 68 degrees and with 40 per cent relative humidity. Provided the house is fairly tight and there is one air change an hour, on a zero day of 24 hours it would be necessary to add about 33 gallons of water to the interior air. Cooking, the laundry, dish washing and other sources provide about one-half of the necessary artificial moisture and the furnace pans must supply as much of the remainder as is possible.

For average weather, say, 36 degrees and 50 per cent relative humidity, about 15 gallons of moisture must be added to the interior air to keep it at the correct humidity.

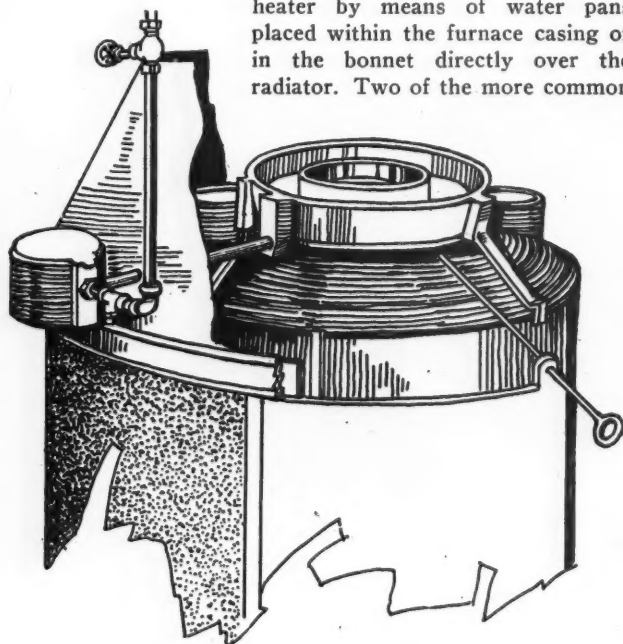
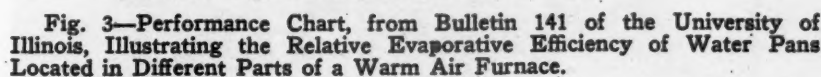


Fig. 1—One Excellent Type of Automatic Furnace Humidifier for Bonnet Location.



Factors Influencing Performance of Pans

In fact, a recent test at the University of Illinois, sponsored by the National Warm Air Heating and Ventilating Association, showed that with 175 degrees register air temperature the dome pan evaporated 0.1097 gallons per square inch of exposed water surface in 24 hours, the crescent type evaporated 0.0732 gallons and the regular design of pan evaporated 0.0522 gallons in the same period. It is thus apparent that the pan placed within the bonnet is about twice as effective as the regular type and about 50 per cent more so than the crescent design. The accompanying table (1) affords an idea of the amount of water evaporated by pans of different proportions.

Condensation on the interior of windows frequently is taken as an indication that there is sufficient moisture in the interior air. While this may be true, it is not necessarily so. Window sweating is due to lowered inside temperature at the window glass to a point when the air no longer can sustain its moisture, consequently deposits it on the glass. The accompanying table (2) reveals the differ-

A check-up also may be had of the relative humidity present when condensation on inner surfaces of windows occurs. Thus, if single glass windows steam when the atmospheric temperature is 10 degrees Fahrenheit and the inside 69 degrees, the relative humidity within the building is 23 per cent. Had the window been double condensation would not have formed until the inside humidity was 54 per cent, rarely attained in ordinary practice. In passing, it is important to know that rooms need be heated about four degrees higher when humidity is low than would have been necessary had the atmosphere been, say, 45 per cent relative humidity, for persons to be comfortable.

The effect on health of "dry" and "moist"

Other sound reasons in favor of maintenance of humidified homes might be cited and one in particular is worthy of careful consideration; that is, the injury which bone-dry air does to furniture. Dryness throws musical instruments readily out of tune, loosens mouldings, picture frames, causes rungs to spring from chairs and loosens construction generally. Dusty houses are always those with dry air. A little moisture helps settle the dust and makes them easier to keep clean and more healthful in which to live.

Moisture-generating devices have now taken their place as regular equipment in our larger buildings, schools, theaters and similar structures, but as yet mechanical devices for smaller, or light, construction have not achieved marked success. Doubtless they will come into general use before many years as the benefits of moist home air become better known.

Many times we find water pans placed on top of radiators in an effort to correct faulty moisture conditions. Unfortu-

(Continued to page 136)

Outside Temperature	Temperature Inner Surface, Window		Relative Humidity, Per Cent	
	Single	Double	Single	Double
-10	13	46	12	45
0	20	49	18	49
10	28	52	23	54
20	34	54	30	60
30	42	57	38	68
40	48	60	48	75
50	55	63	64	83
60	62	66	80	91

Table 2—Relative Humidities, Per Cent, at Which Condensation Forms on Inner Surfaces of Windows, at Room Temperature 69 Degrees.

An Ideal Kitchen Corner

The Big Old-Fashioned Kitchen Brought Up to Modern Standards

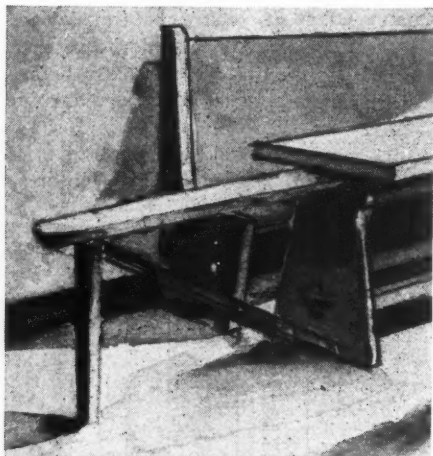
By E. A. MARTINI, Architect

OUR modern house plans provide for a small kitchen. With the advent of central heating plants this room has gradually lost its popularity for family gatherings and is now used only as a work room or "laboratory" as one woman called it. Logically it should be so compact that its total area will accommodate the necessary equipment and leave just enough space for the work to move easily. However, many old houses, while still well preserved, have large kitchens which cause aching feet and many a sigh from the housekeeper.

Ordinarily, it is impossible to slice off part of the room, so how can a kitchen be made smaller? This was the question often discussed in a roomy old house having the traditional large kitchen whose occupants found it difficult to arrive at a practical solution of the problem. To convert one corner into a breakfast nook might be one solution but the room was not only too large, but the entire arrangement was impractical. It often occurred to the owner that the original occupant must have taken delight in walking through the room crossing and recrossing her steps in her efforts to prepare a meal.

Had it been possible to build in a breakfast nook and also a china case the kitchen would have saved many steps. Breakfast and luncheon might then be served in this room and the dining room reserved for dinner and the Sunday meals. But where to place such a breakfast nook and china case was the question, when doors, windows, sink and stove occupied the entire available space.

After careful consideration a solution was found—a stock table and seats, such as can be bought from any firm selling mill work, were installed in one corner of the kitchen directly in front of the window. An ironing board was kept under the table top, this to be pulled out when wanted. One end rested on the end table support and the other end had a hinged leg, folded under and slipped back when not in use.



An Ironing Board, Slipped Under the Table Top, Was Conveniently Placed as the Table Served as a Place to Lay the Clothes and the Irons and Stands Were Kept Inside the Seat.

The table, so near the board, provided a very handy place to lay the clothes before or after ironing and the seat nearest the wall was boxed in underneath, with hinged cover made to lift in two parts. As the box was shallow with a false bottom it was unnecessary to stoop very low to reach the contents. One part contained ironing utensils such



By Means of This Built-In Breakfast Nook and China Cabinet a Big Old-Fashioned Kitchen Was Made Attractive and Convenient with Much Unnecessary Walking Eliminated in the Serving of Meals.

as irons, stand, ironing board covers, wax, paper, etc., the other furnished a fine space for storing the everyday table cloth, napkins and pad, easily reached when setting the table and protected from dust when not needed.

On the back of the other built-in seat, on the side protruding into the room, a case was built. This case had three doors, glazed with easily cleaned obscure glass (wood doors might serve the purpose better with a family of husky boys). The top shelf was only about 8 inches wide for cups and saucers, the lower ones gradually increased in width for the larger dishes. The bottom shelf, projecting under the seat, gave ample room for the daily needs of the family. Towards the back, utensils seldom used could be placed, and in front those needed in a hurry.

The top of the case being a flat board with a slight ledge on the sides provided space to set dishes aside while serving a meal, and the ledge prevented any from being pushed off.

The window had drapes on top and side with the center left free for a fine view of the garden and the trees beyond, more beautiful than many pictures. The material for the drapes was a white dimity with blue dots, and the same arrangement on the other windows made a pleasing appearance. The woodwork was painted a light gray, with a small amount of pale blue on the narrow edges of the table, seat ends and ledge made to match the blue enamel of the kitchen and the dots on the curtains.

The two outside doors were wood and, as the windows were small and the kitchen formerly appeared gloomy, the case obscured even more light than before and to offset this, the upper wood panels in the doors were removed and glass inserted. The old dismal papered wall was then recovered with a washable oil cloth, the design being a clouded effect of gray and pale blue spots on a light gray background. With this pattern, any spots on the wall would appear as part of the design and the wall would always look neat.

A mottled inlaid linoleum on the entire floor matched the woodwork. This made an ideal floor covering, was easy on the feet, did not soil like a wood floor, and being inlaid, did not show wear.

Stair Building

By C. V. OLSON, Instructor in Carpentry at the Lane Technical High School, Chicago

This is the first of a series of articles on stair building, by Mr. Olson, which will be published each month.

CARPENTERS have always recognized stair building as an important part of their trade. Some have even classed it as an art and believe it requires some artistic or other gifted qualification to be able to build stairs.

We all realize that stairs either enhance or destroy an otherwise well designed building; that certain essential conditions are demanded in order to make them practical as well as artistic. It is for these reasons perhaps that some mechanics have an idea that it is by some mysterious process that their fellow workers accomplish that which to them seems impossible. This idea can be driven from the minds of such men by showing them a method of thinking about stair work so as to enable them to visualize the construction, thereby enabling them to lay out the work without hesitancy.

Let us start much as a child would if asked to draw a picture of a stair and we would have something as shown in Fig. 1.

Figure No. 1

Here we have illustrated the rise and run of the

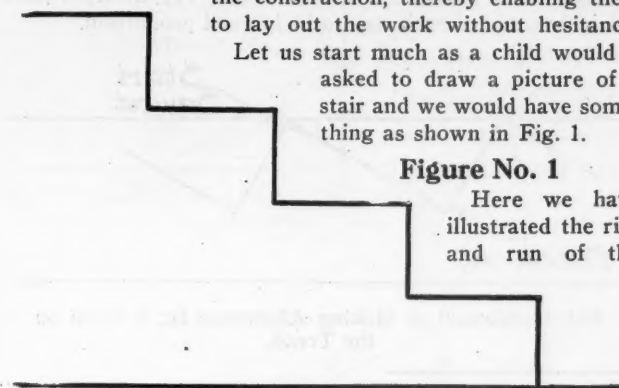


Fig. 1—The Rise and Run of a Stair Illustrated in the Simplest Form.

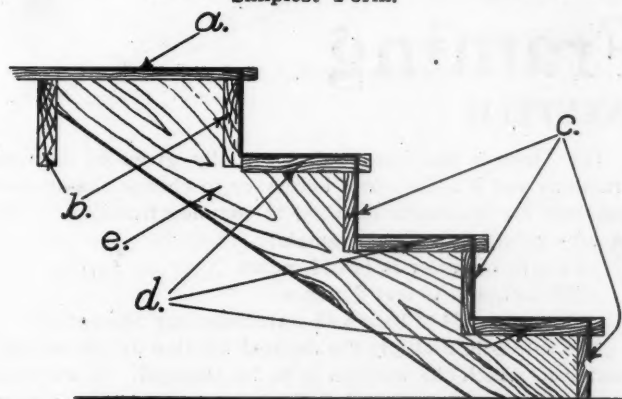


Fig. 2—The Heavy Lines Correspond with Fig. 1. The shaded portions show, (a) the porch floor; (b) the joists; (c) the risers; (d) the treads; (e) the stringer.

stair. If we were to improve on the child's drawing by shading so as to show construction we would have a picture as shown in Fig. 2.

Figure No. 2

Here Fig. 1 is shown by heavy lines. The construction is shown by the shaded portions: (a) the porch floor; (b) the joists; (c) the risers; (d) the treads; and (e) the stringer.

In the above you recognize the typical construction as used for framing an outside porch stair; the stringer being framed

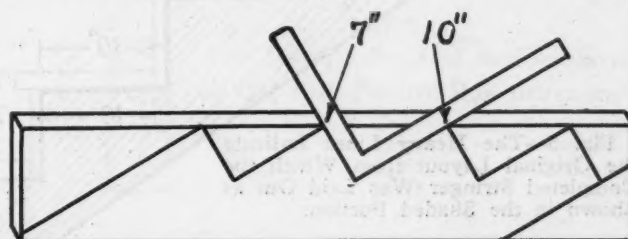


Fig. 3—Represents a Foundation from Which We Derive the Cutting Lines.

so as to be supported by the porch joist. Note that the heavy lines represent the faces of the risers and the upper edges of the treads. Also notice that the tread projects beyond the face of the riser. This portion of the tread is called the nosing. The usual projection of the nosing is about an inch and one-half, which is about the thickness of the tread. Sometimes a rule given is: the projection of the nosing should be the thickness of the tread. The nosing is never considered when laying out the stair.

Assuming that we have a stair as illustrated with four risers and three treads the rise being seven inches and the run ten inches for every step.

With the aid of a steel square lay out a 2 by 12-inch plank to form the stringer as shown in Fig. 3.

Figure No. 3

As you will notice the above layout does not represent the cutting lines but simply a foundation from which we derive the cutting lines. The procedure should be as follows:

Figure No. 4

(1) Subtract the thickness of the tread as shown in Fig. 4 from the lower riser and draw line heavily as this is a cutting line.

(2) As this lowers the whole stringer another line should be added above to represent the floor of the porch. In other words, place above what you removed below. Draw this line lightly as it is a working line only.

(3) We now have the risers to consider. In Fig. 5 the heavy lines represent the original layout as shown in Fig. 3.

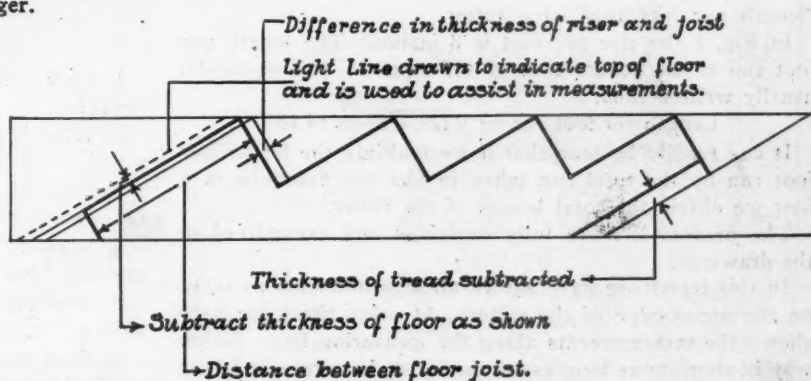


Fig. 4—The Heavy Lines in This Finished Layout Are the Sawing Lines.

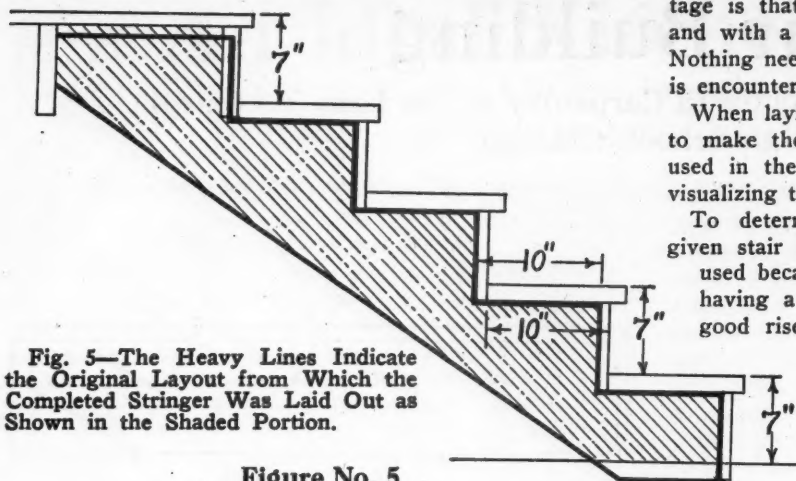


Fig. 5—The Heavy Lines Indicate the Original Layout from Which the Completed Stringer Was Laid Out as Shown in the Shaded Portion.

Figure No. 5

Because of the difference in the thickness of the joist and the risers that difference must be subtracted from the upper rise as shown in Fig. 5.

(4) The fourth operation consists of making proper allowance for the porch floor also measuring and laying out the distance between the first and second joist making allowance for the pitch of the floor if there is any.

When the pattern stringer has been cut all that is necessary to make the pair is to place the pattern stringer upon the board to be marked with the face side to it and mark.

To make allowance for a pitch on the tread a practical method is to start the saw cut on one side of the line and finish on the other as shown in Fig. 6.

Figure No. 6

This usually allows about $\frac{1}{8}$ to $\frac{3}{16}$ -inch pitch. The advan-

tage is that it requires no extra marking of the layout and with a little experience it can be done very readily. Nothing need be said about erection as very little difficulty is encountered in erecting a simple stair.

When laying out a stringer the important thing to do is to make the proper allowances for the various members used in the construction and this can best be done by visualizing the completed job.

To determine the number of risers necessary in a given stair we divide the total rise by seven. Seven is used because we have found by experience that a stair having a rise approximately seven inches will have a good rise. It has also been determined that a stair having a rise and run of seventeen inches will be in good proportion. Another rule is that twice the rise plus the run should equal 24 inches.

Problem: Given a stair with a total rise of $67\frac{1}{2}$ inches. Divide $67\frac{1}{2}$ by 7 equals

9.64. Eliminate the fraction .64 and use 9 as the number of risers. Divide $67\frac{1}{2}$ by 9 equals 7.5 the number of inches to each rise. Seventeen inches minus $7\frac{1}{2}$ inches equals $9\frac{1}{2}$ inches, run of each step to be in good proportion.

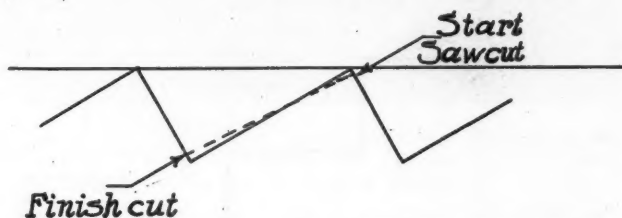


Fig. 6—Method of Making Allowance for a Pitch on the Tread.

The Length Per Foot Run In Roof Framing

By JOHN T. NEUFELD

A FEW lessons back we introduced the different methods in use for finding the lengths of rafters. At this time the "length per foot run" method will be explained in detail. Following this the study of hip roofs will be taken up.

The length of a rafter per given foot run is called the "length per foot run."

Or we may define the "length per foot run" as the diagonal distance across a triangle of which the base is 12 inches and the altitude is the rise in inches per foot run. The mathematical method of finding the length of the hypotenuse of a right triangle may therefore be used to find the "length per foot run" of a rafter.

In Fig. 1 the rise per foot is 8 inches. The length per foot run is the square root of (12 squared + 8 squared), usually written thus:

$$\text{Length per foot run} = \sqrt{12^2 + 8^2} = 14.42$$

It can readily be seen that if we multiply the length per foot run by the total run taken in feet and fractions of a foot we obtain the total length of the rafter.

The process is more fully explained and exemplified in the drawings.

In this lesson we have shown all measurements as taken on the upper edge of the rafter. At other times we have shown the measurements along the measuring line. Either way is accurate as long as we do not make errors in laying out. It is a little easier to make an error when measuring on the back of the rafter.

The "length per foot run" is usually given in decimal fractions and it is therefore necessary to change the answer obtained for the length of rafter to common fractions. This is very easily done, for example:

Length of rafter is 128.34 inches

128 inches is 10 feet 8 inches

.34 inch is $.34 \times 16 = 5.44$ sixteenths, say $5\frac{1}{16}$ inches

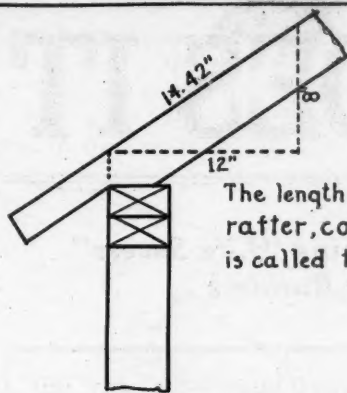
The rule is to multiply the decimal fraction by the denominator to which the fraction is to be changed. If we wish to change to sixteenths of an inch we multiply by sixteen, if we wish to change to eighths we multiply by 8.

Thus .59 is $.59 \times 8 = 4.72$ eighths, say $4\frac{7}{8}$ inches

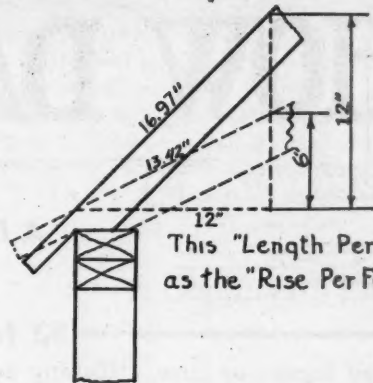
Problems

1. How is the length of the hypotenuse of a right triangle found?
2. What is the length of the hypotenuse of a triangle with a base of 12 inches and a rise or altitude of 14 inches?
3. Give the length per foot run for the following pitches: One-fourth pitch, $\frac{3}{8}$ pitch and $\frac{7}{24}$ pitch.
4. What is the length per foot run of a rafter with a rise per foot of 6 inches?
5. Find the length of a rafter for a building 34 feet wide with a 7-inch rise per foot run.
6. Find the length of a rafter with a run of 14 feet and pitch of one-fourth.

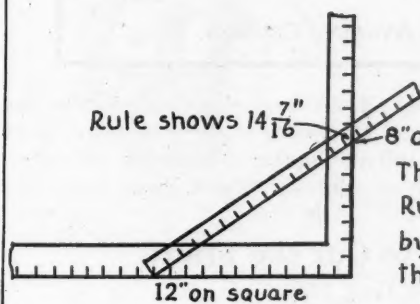
(For the answers see page 136)



The length of the portion of a rafter, covering one "Foot Run", is called the "Length Per Foot Run"

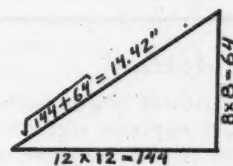


This "Length Per Foot Run" increases as the "Rise Per Foot Run" increases.



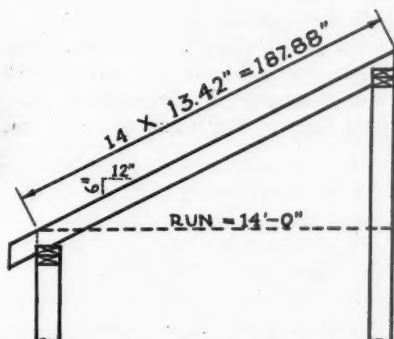
Rule shows $14 \frac{7}{16}$ "

8" on square
The "Length Per Foot Run" may be found by measuring across the square.



A more accurate way is to Find the "Length Per Foot Run" by the Square Root method.

The length of the Hypotenuse of a Right triangle is equal to the Square root of the sum of the squares of the other two sides

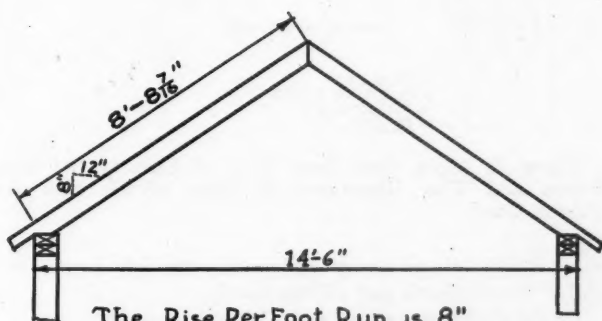


The "Length Per Foot Run" multiplied by the number of feet of "Run" gives the "Total Length" of the rafter

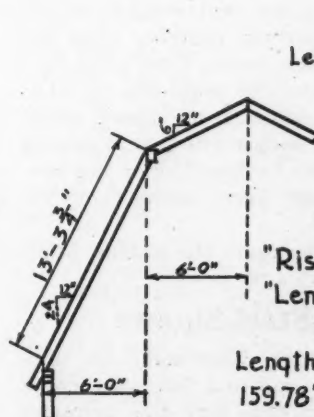
RISE PER FOOT	PITCH	LENGTH PER FOOT
3"	3/24	12.37"
4	1/6	12.65
5	5/24	13.00
6	1/4	13.42
7	7/24	13.89
8	1/3	14.42
9	3/8	15.00
10	5/12	15.62
11	11/24	16.28
12	1/2	16.97
15	5/8	19.21
18	3/4	21.43
20	5/6	23.32
24	FULL	26.63

The "Length Per Foot Run" for different pitches is usually tabulated

Tables are found in Handbooks and on Steel Squares



The Rise Per Foot Run is 8"
The Length Per Foot Run = 14.42"
The Run is $\frac{1}{2}$ of 14'-6" = 7'-3" or 7.25 FT.
Total Length is $14.42 \times 7.25 = 104.45$ "
 $8'-8 \frac{7}{16}"$



UPPER RAFTER
Length Per Foot Run = 13.42"
Run = 6'-0"
Length is $13.42 \times 6 = 80.52$ "
 $80.52" = 6'-8 \frac{1}{2}"$

LOWER RAFTER
"Rise Per Foot Run" = 24"
"Length Per Foot Run" = 26.63"
Run = 6'-0"
Length is $26.63 \times 6 = 159.78$ "
 $159.78" = 13'-3 \frac{3}{4}"$



HOW DAN DOES IT

*A Department for Passing "Life Savers"
along to other Builders*

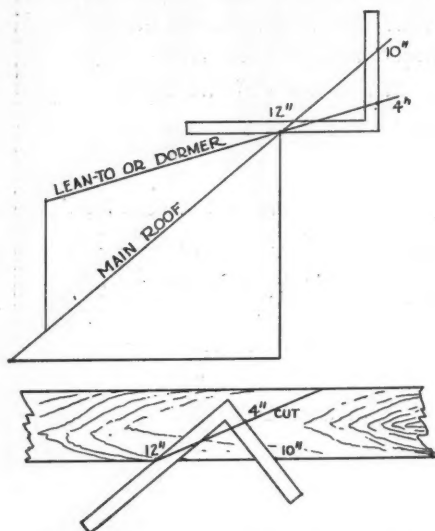
\$2 for an Idea

Dan is an ingenious cuss. Nothing ever stumps him. He always knows the way out when he runs into a tough problem out on the job or in the office. Dan is the editor of this Department and will pay \$2.00 each for every good idea he can use here to show and tell other builders "how to do it." Send him a rough sketch and a short description of what the tough job was and how you handled it.

Address Dan-Do-It, care of American Builder 1827 Prairie Avenue, Chicago, Ill.

Quick Framing Method

I AM a student in the Dunwoody Institute and during our study of roof framing I worked out this method of finding the cut for lean-to rafters. Mr. J. R. Peterson, the



shop instructor, and Mr. A. R. Blomquist, carpentry instructor, in the evening school have both adopted this method as it works out the same as other methods used for this problem and requires only about half the time. The usual methods require at least two settings of the steel square. My method requires but one setting.

Use a piece of stock about 6 or 8 inches wide and

take 12 inches and the unit rise of the main roof on the steel square. Then mark on the edge of the board at the 12-inch side and without moving the square mark for the number of inches rise of the dormer, counting from the heel of the square. Through these points draw a straight line. This is the cut. However, the difference between the two rises and the 12 inches taken on the square would not make the cut. The sketches shown will help to explain this method. Pitches of one-sixth for the dormer and five-twelfths for the main roof, have been assumed for the sketches.

Roy E. OLSON, Dunwoody Institute, Minneapolis, Minn.

Improving the Steel Square

ANOTHER idea which may prove useful makes the common steel square easy to read and also rust proof. First make the square bright and clean with fine sandpaper or pumice, then paint all over with one or two coats of white enamel rubbing well into all figures and markings. When the enamel is nearly dry scrape it off with a safety

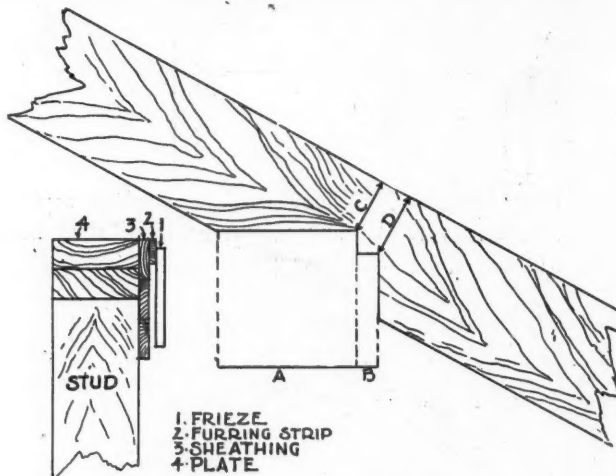
razor blade removing all the enamel except that in the figures and markings. Moisten a cloth with some good waterproof varnish, rub the square thoroughly and allow to dry before using.

JOHN C. STILLE, Eagle Point, Ore.



How to Cut the Frieze

I NOTICED in the June, 1926, issue, an article, by E. J. Wilson, telling how to cut the frieze or trim board around the rafters. I have a much better plan and am enclosing a diagram to show exactly how it is done. After the sheathing is all on, furring strips are nailed on and a line is struck for the lower edge of the frieze. The frieze is then nailed in place ready to set the rafters, which are cut as shown in the diagram. If the notch is cut square and the rafter is held tight to the frieze when nailing, there



There Is More than One Way of Cutting the Frieze Board and This Illustrates an Idea Which Has Been Tested Out.

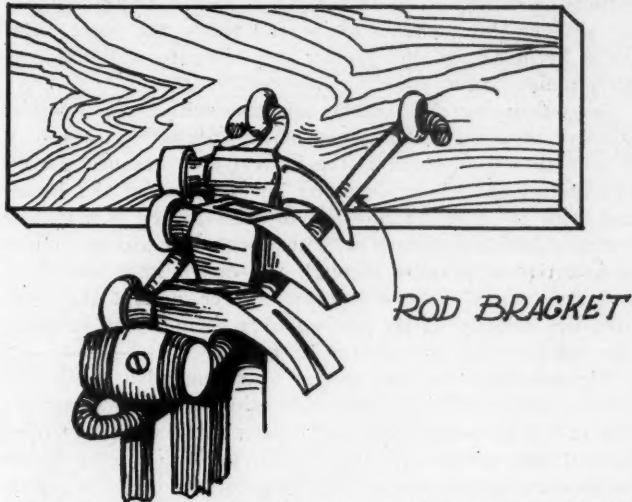
is no space left to show. The tails are left long enough and a line is struck and all cut evenly.

In the diagram the cut at "A" is the same as it would be for any ordinary rafter. "B" is the extra notch which is made and is equal to the thickness of the frieze and furring strip. The distance "C" is 2 inches. It will be noticed that the notch is dropped down so that there is no less than 2 inches at "D" therefore the strength of the rafter is not diminished as would be the case if there was a large notch cut.

H. M. SCHLEFF, 2314 Rogers St., South Bend, Ind.

Handy Tool Hangers

THE holder shown in the sketch is an idea which was evolved in a contractor's tool house for the storage of tools. The sketch tells the whole story of its simplicity. Iron rods, about 3 feet long, bent at the center and attached to the side walls with eye bolts, are the hangers



A Tool Hanger of This Sort Is Quickly and Easily Made and When Not in Use It Drops Against the Wall Entirely Out of the Way.

and serve for one or a dozen tools with equal facility. When not in use the hanger swings down against the wall, taking up no space whatever. Hangers of different sizes, to accommodate different kinds of tools may be made of different sizes of iron rod.

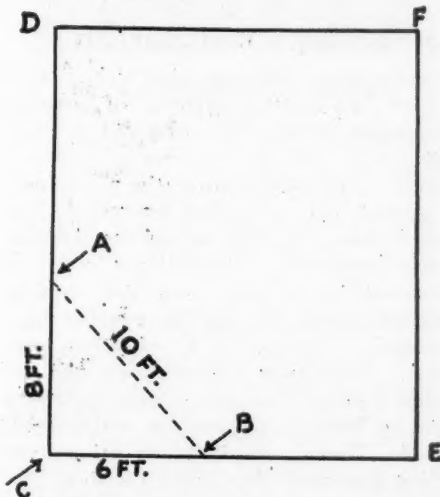
GEORGE A. LUERS, 130 E. Capitol St., Washington, D. C.

Squaring Foundations

THE "six, eight and ten" method of squaring the corners in laying out a foundation is well known to most all good builders. But there are many to whom the art of squaring a corner accurately is apparently a mystery.

The writer has seen some workmen attempt to square a good sized building with a steel square and even with an ordinary try-square. The slightest variation of line from the blade or tongue of a common square can amount to several inches in the length or width of a long or wide building.

The "six, eight and ten" rule is used as follows: C, being



Here Is an Illustration of the "Six, Eight, Ten" Method for Squaring Foundation Accurately.

the position of one corner of the building, measures exactly 6 feet from C to B. Likewise, measure off exactly 8 feet along line from C to A. Then shift the lines C, D and C, E until distance from A to B is exactly 10 feet. This corner will then be square. Now measure off the width of your building from C to

E, and proceed with this corner the same as before. If these two corners are accurately squared and length of building is carefully measured off from C to D, and from E to F, the corners D and F will also be in square and will need no attention.

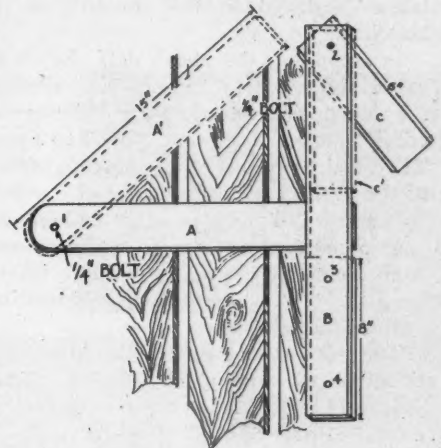
A light straight stick accurately marked off at 6 feet, 8 feet and 10 feet is most convenient for making the measurements. Pins should be stuck through the line at A, B and C to mark the points of measurement.

E. J. WILSON, Gen. Del., Portland, Oregon.

A Good Gate Latch

OFTEN horses or cattle get the habit of opening a pasture gate or crib door. A latch which will prevent their doing this is shown in the drawing. This latch requires four bolts $\frac{1}{4}$ inch by $2\frac{1}{2}$ inches and four pieces of board $\frac{1}{2}$ inch by $2\frac{1}{2}$ inches, in lengths of 6 inches, 8 inches, 15 inches and 17 inches, as shown.

The bar "A" hinges on the bolt numbered 1 and is fastened to the door. This bar is shown in the closed position at "A" and in position for opening the door at "A'." The block "C" hinges on the bolt numbered 2 and slides under the piece "B," when it is desired to lock the door. The fourth block is held in position under the piece "B" by the two bolts numbered 3 and 4, which also hold the lock securely to the crib or gate post. All the bolts should be placed with the nuts on the inside.



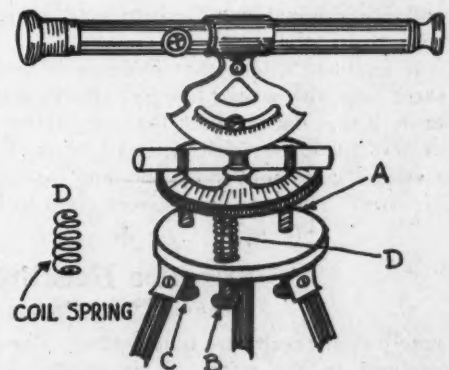
A Simple Gate Latch Which Can Always Be Counted on to Keep Horses and Cattle from Slipping the Catch and Getting Through.

LEON PROBST, R. R. No. 4, Gosport, Ind.

Improving the Transit Level

FOR the benefit of those who, like myself, own one of the old type of transit levels with three leveling screws,

as shown in the sketch, I am submitting an idea which I have found handy. Turn back one thumb screw, leaving about $\frac{1}{2}$ inch above the lower plate, and over it slip a good, stiff, $\frac{1}{2}$ -inch coil spring, between the two plates, and do the leveling with the other two screws. If you will try this the next time you feel like cursing the man that invented the screw level I am sure you will be perfectly satisfied with your instrument.



The Old Type of Transit Level, with Three Leveling Screws, Can Be Made More Handy by Means of a Small Spring.

L. W. PIKE, 17 Brattle St., Brattleboro, Vt.

Labor the Big Item in Building

BUILDING costs today are 62 per cent for labor, according to an investigation just announced by the United States Department of Labor. The changing proportion of labor cost to building materials cost during the past 12 years is interesting; 1914 was probably typical of the pre-war condition. In that year 44 per cent of building cost went into materials and 56 per cent into labor. Then during the war the price of materials soared faster than wage rates, and in 1919 we find the percentage reversed, 55 per cent of building costs that year being for materials while 45 per cent went for wages. Since 1919 there has been a gradual return to the pre-war condition except that both material prices and labor wages have been on a higher plane. At the present time the Department of Labor figures that 38 per cent of building costs are for materials while 62 per cent represent wages to skilled and unskilled labor employed in the construction and finish of new buildings.

In compiling the above data the bureau experts investigated eight different types of buildings ranging from a reinforced concrete factory building and a steel frame office building down to a typical two-story frame residence. They feel, therefore, that these figures are truly indicative of the average situation today.

It is a well-known fact that building activity means widespread national prosperity. The reason for this is clear from the above figures showing to what extent the nation's investment in new buildings is immediately returned to the people through wages.

The present outlook in the building field is for a continuation of building activity on the same scale as last year. The AMERICAN BUILDER survey just issued forecasts a total of over \$7,000,000,000 for 1927.



What Is the Building Trend?

(Continued from page 125)

my influence that 75 per cent of my business comes in unsolicited.

"Architects and contractors are always vitally interested when I show them the unadorned facts about the superiorities of my product and the economies of building with it. I think the color possibilities from an architectural standpoint have barely been scratched. If you look around you and think about it you'll find an enormously increased use of color in every type of building. Homes and apartments fairly cry out for color to express beauty and pleasantness. Stores, garages, and filling stations can and will use original color schemes to identify their quarters with their product."

If anybody thinks that building is settling into a rut, a short talk with a man like Sewall will awaken a whole new train of speculation about the possibilities hitherto neglected in permanent materials. Sewall thinks that color and permanence are right now the big factors in the building industry. His own experiences seem to back him up.



Furnace Heating

(Continued from page 129)

nately their results are unimportant unless the area of water exposed to the warm air is great. Still air, though it surrounds water receptacles, picks up little moisture. When moving over the surface, however, its absorptive qualities are enhanced. Radiator pans when set on top of radiators rarely attain more than 120 to 130 degrees. As there is almost no volatility at these temperatures little of the fluid passes to the air.

A test along this line made at the University of Illinois and published in its Bulletin 141 shows that the faster the

air is circulated over water pans the greater the pick-up. The evaporation from a pan of water in still air was only about one-tenth of that of a crescent-shaped pan located in the casing of a warm-air plant when the surface of the water was 170 degrees. In the same series of tests it developed that if the water in still air were heated to 170 its delivery to the atmosphere approached that of the crescent pan within the casing. The impression is gained, therefore, that the greater the temperature of the water the more volatile it becomes and the greater its ability to mix with the surrounding atmosphere.

In considering the location of pans within the furnace, whether they are to be placed at the side or in the top, it is seen that the bonnet is the hottest part because the air supply has passed on over the hot sections of the heater and then is in direct position to pass to the distributing leaders. When moisture pans are located at this point loss in quantity in passage through the distributing system is less than when the pan is placed lower, and at the same time the velocity of air passing over them is the greatest. The top location has much in its favor.

The automatic feature cannot be commended too highly because unless there is direct connection to the house service line it will be found that water pans will have to be filled daily if they are producing effective results. If pans do not become exhausted readily it is obvious that they are poorly placed, lack exposed area, or are ineffective for some other reason. Not only should they be kept full but they should be flushed and cleaned out constantly to prevent odors going through the piping system.



Length Per Foot Run in Roof Framing

(Continued from page 132)

Answers

1. The length of the hypotenuse of a right triangle is found by taking the square root of the sum of the squares of the other two sides.
2. If the altitude is 14 inches and the base 12 inches, then the hypotenuse is 18.44 inches.
3. One-fourth pitch, 13.42 inches; three-eighths pitch, 15.00 inches, and 7/24 pitch, 13.89 inches.
4. If the rise per foot is 6 inches the length per foot is 13.42 inches.
5. If the width is 34 feet the run is 17 feet. The length per foot run is 13.89 inches. The length of the rafter is $13.89 \times 17 = 236.13$ inches, or 19 feet $8\frac{3}{4}$ inches.
6. The length per foot run is 13.42 inches. The length of the rafter is $13.42 \times 14 = 187.88$ inches or 15 feet $7\frac{7}{8}$ inches.



Organize End-Matched Bureau

THERE has recently been organized what is known as the "Southern Pine End-Matched Bureau," a grouping together of thirteen manufacturers and end-matched products, chiefly flooring.

Seven manufacturers were represented at the preliminary meeting the new bureau and six others expressed their approval and promised their co-operation and membership. The total membership represents an annual production of 75,000,000 feet of end-matched products. The sole requisite for association with the bureau is that the member be a manufacturer or prospective manufacturer of yellow pine end-matched products. The bureau will be closely affiliated with the Southern Pine Association in its general operations.

At the initial meeting length standards for end-matched flooring were adopted. Though standards for other items than flooring were not discussed, the bureau members plan to extend their end-matching activities to sub-flooring, sheathing, roof covering, siding, ceiling, partition and much other 1-inch lumber used in ordinary construction.



WHAT'S NEW ?

EDITOR'S NOTE: *The AMERICAN BUILDER does not accept payment in any form for what appears in our reading pages. In order to avoid any appearance of doing so, we omit the name of the maker or seller of any article we describe. This information is, however, kept on file and will be mailed to anyone interested; address AMERICAN BUILDER Information Exchange, 1827 Prairie Ave., Chicago.*

Terra Cotta Garden Art

IN many of the public parks and private gardens of Europe travelers have long been accustomed to seeing fascinating bits of art, figures of animals and birds, turtles or frogs, or figures from well-known fairy tales, moulded from terra cotta and in characteristic colors, adding a lifelike charm to the surroundings.

Now these pieces of modern art have been made available in this country and are winning a quick favor from all who see them.

These figures are made of colored terra cotta, painted in natural colors, and are widely used in flower and rock gardens, in conservatories, in connection with pools or lakes, and in woodlands. They add a most effective touch and invariably create a pleasing atmosphere. Wherever there are children the little people are always delighted by the quaint figures of familiar characters from their favorite fairy stories.

There is a wide variety to choose from, birds of many kinds, mushrooms and tree trunk seats,

turtles and frogs, animals, even to life size deer, and gnomes and dwarfs. Because they are made of terra cotta they will withstand, indefinitely, any amount of rain, wind and rough weather. The sizes are appropriate for gardens of all sizes, large or small.

Terra Cotta Garden Figure.



Strong Economical Steel Bridging

AN integral connection between three joists is formed by the use of the steel bridging, two views of which are shown here. This bridging connects each joist with the two on either side of it, instead of with only one and braces by tension rather than by compression, making it unusually strong.

In the use all the bother of preparation is eliminated as the bridging automatically adjusts itself to variations in angles and spacing of the joists, and it can be applied, it is said,

in a small fraction of the time ordinarily required. Only three nails per joist are used instead of the usual eight. It also leaves more room for pipes and is not so easily knocked loose by other contractors, as well as being uniform and neat in appearance. It is also said to be more economical than the older type of bridging.

This bridging is shipped in straight lengths in cartons and, in applying, is bent in the hands, to the inverted "V" shape. It is then



New Steel Bridging in Place.



Easy To Apply.

edges of the two adjacent joists and nailed to their opposite sides. For the ends of the run half lengths are furnished in each package. This bridging is furnished in four stock sizes to fit all sizes and spacing of joists.

Textured Wall Decoration

THE vogue of textured walls is firmly established and the chief concern now, is the selection of the most desirable of the many materials developed for this particular type of decoration, obtaining the plastic material which will be most easily worked, most dependable, most enduring and which will afford the greatest possibilities for truly artistic work.

A plastic composition designed to make possible the reproduction of historic wall textures as well as the development of new and novel decorative color effects in both high and low relief, is manufactured in dry powder form and simply requires mixing with cold water to prepare it for immediate application. It is adapted to the decoration of all interiors, small or large homes, apartments, hotels, churches, clubs, theaters and public buildings. Either fine or bold textures and colors from the most subdued to the most brilliant are possible.

(Continued to page 138)

(Continued from page 137)

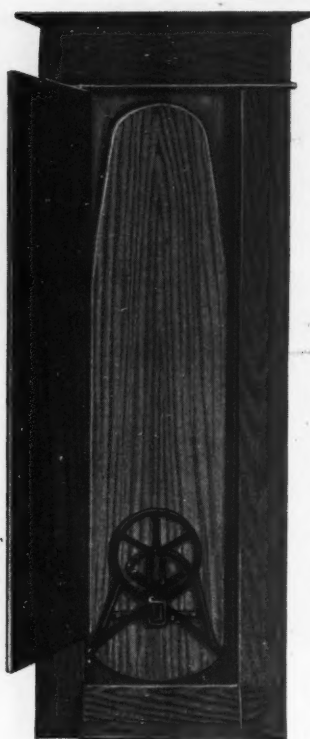
This material can be applied over plaster, wall board, brick, stone, concrete, wood or any solid surface that provides a firm foundation. It is made in white only but may be tinted any desired color in mixing, any dry color being used, including tints supplied by the manufacturer. If preferred the color may be applied after the texture material is on the wall in which case it is mixed with a flattening oil or glazing compound and used for either single color or blended effects.

The application of flattening oil, glazing compound or white shellac makes this finish waterproof so that it may be washed without damage.



Ironing Board on Rotary Bracket

THIS cabinet ironing board possesses a feature which distinguishes it from all other cabinet ironing boards; that is, its rotary bracket which makes it possible to place this board in any desired position, even parallel with the wall, and lock it in position. Another distinctive feature is the fact that this board is so designed that when lowered into position the cabinet door can be closed. This later makes it possible to use board as a kitchen table or even as a breakfast table, when occasion requires.



Rotary Bracket Lets Board Swing To Any Position.

When not in use the utility table can be detached and put into a closet or along the wall, so that the space it occupies when lowered into position becomes available for other uses. Snugly fastening the ironing board within the cabinet utilizes waste space and the rotary bracket provides the means of conveniently swinging the ironing board into or out of the cabinet.

This ironing board can easily be installed in a few minutes. It is set 26 inches above the floor and is 4 inches deep and 14 inches wide to fit between two by four studs spaced 16 inches on centers. In height this cabinet lines up with the other doors, being 6 feet 8 inches high. Door casing, door cap or any other hardware for the cabinet door is not furnished with the cabinet. Any kind of casing can be used as the door is hinged in the jamb. There should be no obstructions between the studding to prevent the cabinet from going back to the proper place.



Good Economical Cinder Block

THE cinder concrete block shown here is manufactured from a plastic mass which is thoroughly mixed and saturated with a solution of acidulated gauge water. This requires no special machinery or extensive changes in the ordinary concrete products plant. The patents on this block

cover the manufacture of building units with the use of cement, cinders and acidulated water or cement slag and acidulated water.

These units are used in practically every purpose in the building industry, such as back-up block, brick, tile, roofing tile, lintel, fence posts, flooring slabs, nailing strips and numerous other forms. Among the advantages claimed for these units are fireproofness, nailability, sound-proofness, light weight, ease of cutting and handling, non-conducting quality, perfect adhesion, high crushing strength, sound insulation and low selling price.

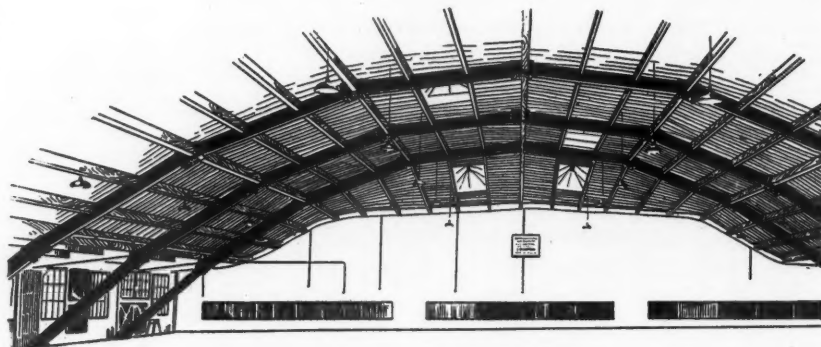


The Arch Principle Used in Roofs

THE strength and other advantages of the arch principle of construction have long been known. Now a practical way has been evolved of applying this principle to the economical construction of buildings having spans up to and over 200 feet, where unobstructed space is desired. With its use all the loss of space and interference with light and ventilation are eliminated.

This arch roof is adapted to practically every type and style of construction and to buildings of all sizes. It can be constructed of timber or steel and can be fireproofed or fire-retarded.

A partially constructed roof of this type was tested by the Columbia University testing laboratory in New York. An 80-pound-to-the-square-inch sand load was first used and while in place a storm occurred which added the weight of 2 inches of rain in 24 hours and the stress of a 48 to 70-mile wind. After nine days the open structure showed no visible effect and over half the sand was removed from half the arch, subjecting it to an unsymmetrical load, without visible effects. The structure, without the sand, was exposed to the weather for several months when it was incorporated in a complete building. It is now open for inspection as an example of the merits of this roof.



New Arch Roof Construction.



Cinder Block Will Hold Nails.



Here is a Combination For Utmost Convenience

ALL THE ESSENTIALS of the modern kitchen are conveniently grouped in this one compact combination. It contains a standard kitchen cabinet-base with bread board, metal bread drawer, sliding trays and racks for pots and pans. It contains a refrigerator and a gas range with oven and broiler. It contains a kitchen cabinet storage cupboard, with flour bin and sifter, cook book holder, extract racks, cutlery drawers and the like.

The Maple Plank top is grooved for draining and space is provided for a standard 14 x 20 sink. The stove recess is lined with metal and is insulated from the cabinet with asbestos.

This combination can be made up with the stove either on left or right. Similar combinations in other widths can be made from Standard Napanee units.



The list of fine homes and apartments for which we provide kitchen equipment has grown amazingly. Napanee equipment possesses conveniences and features far superior to those included in mill cabinet work and the cost is very low. Nowhere can one find finer quality than is built into Napanee units.

Send the coupon below for further information and details on units. If you want to see other combinations than the one suggested above please ask specifically for them.

COPPES BROS. & ZOOK, Nappanee, Indiana

NAPANEE

DUTCH KITCHENET

Built Like Fine Furniture

OUR GOLDEN ANNIVERSARY YEAR

COPPES BROS. & ZOOK, Nappanee, Indiana AB8
Please send me information on your various styles and sizes of kitchen equipment. I am
☐ Builder ☐ Architect ☐ Home Owner [Please check square]

Name _____

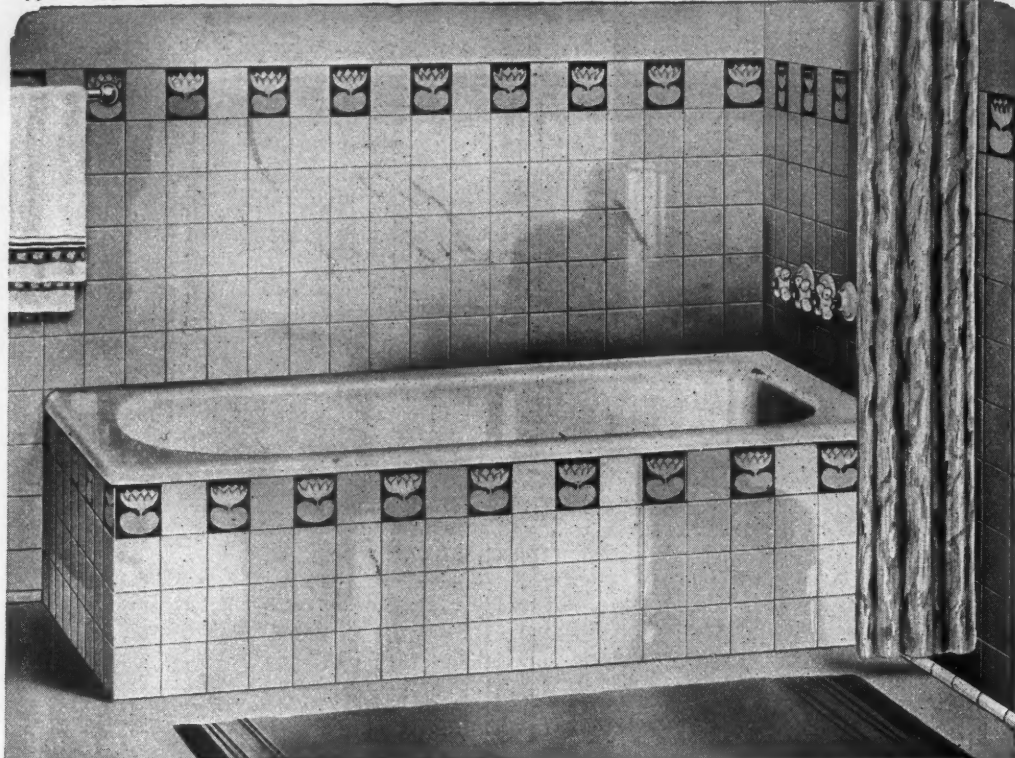
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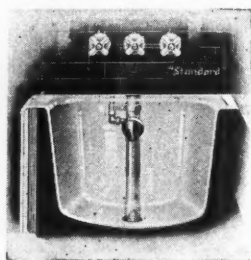
State _____

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

A D A P T O — T H E 3 6 - I N C H W I D E B A T H



Adaptable to any decorative bath tile-scheme ~ "Standard" Adapto



Fitted with Special K-300 Top Nozzle Supply and IMPERIAL Drain Fitting with Built-in RE-NU Compression Valves and china Handles for end wall

"Standard" Adapto meets every requirement for harmony with any of the artistic decorative tiled bathroom installations now the vogue.

This perfectly proportioned one-piece bath takes tile or marble front and end—with outlet at either end as desired for building in to right or left hand corners, or for pier or recess installations. The Adapto is 36 inches wide—the widest bath made.

With the inside made of smooth glistening Acid-Resisting Enamel or regular enamel, the Adapto Bath gives distinguished style to any bathroom.

"Standard" non-tarnishing Chromard finish fittings with the sheen of platinum add a touch of richness.

This bath is furnished in one size—5½ feet long by 36 inches wide. Details of "Standard" baths in styles and sizes to meet all specifications will be found in the catalogue. The trademark "Standard" is impressed in every "Standard" product. Look for it.

Standard Sanitary Mfg. Co.
Pittsburgh

Send for catalogue which includes
full details on all the latest
"Standard" products

"Standard"
PLUMBING FIXTURES

FOR ADVERTISERS' INDEX SEE NEXT TO LAST PAGE

"THE SINK IN THE SUNLIGHT"



The utmost in kitchen satisfaction

The "Standard" Three Eights Sink

No feature of the modern house is more important to the housewife than the kitchen equipment. "Standard" "Three Eights" Sink has an instant appeal because of the completeness of its convenience as well as its new beauty.

Here is a sink with an 8-inch back that goes right under a low window. Cheerful light and view! Here is a snow-white Acid-Resisting Enamel that juices can not discolor nor cleaning compounds roughen. Here is eight inches depth—2 inches more than usual to prevent over-rim splashing. The 8-inch front gives the whole sink a new beauty, and the tallest vessel will go under the swinging-spout Chromard finish faucet. The directly attached garbage container with removable aluminum receptacle is a great step saver.

This sink is furnished in three styles and seven sizes. Acid-Resisting Enamel should be specified as many other "Standard" models are made in regular enamel. The trademark "Standard" A-R is impressed in every "Three Eights" Sink.

Standard Sanitary Mfg. Co.
Pittsburgh



The beautiful hand-wrought faucet with swinging-spout is finished in platinum-like Chromard, which cannot tarnish or corrode



The directly attached garbage container with removable aluminum receptacle

"Standard"
PLUMBING FIXTURES

A "Standard" Catalogue at your elbow will make the writing of specifications easy

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Electric Range and Water Heater

A COMBINATION electric range and water heater is shown in the accompanying illustration. This is a piece of electrical equipment which will add greatly to the efficiency of the home equipment. It consists of a two-burner range with oven and an 18-gallon capacity water heater condensed into a unit only 64 inches high, and occupying a floor space 26 inches deep and 22 inches wide.

This unit can be installed on the present 30-ampere, two-wire, residential line. It is only necessary to install a separate circuit from the meter to the range, no additional outside wiring or line equipment is needed. With full use of the range and an abundant supply of hot water the maximum demand cannot exceed 2,500 watts. It insures double K. W. H. return that is received from a single three-wire range installation.



Combination Electric Range and Water Heater in Full Porcelain Enamel.

The range is finished in full porcelain enamel with polished nickel trimmings. The mineral wool insulated oven is finished inside with rust-resisting metal, reflecting the heat and insuring an even temperature. There is an appliance receptacle and a calibrated oven temperature indicator. There is one 1,250-watt baking or broiling high speed unit which can be placed at either the top or bottom of the oven.

One 750-watt and one 500-watt open type units are provided on the cooking surface. The units are equipped with three heat-reciprocating switches. The range is mounted on heavy furniture steel, has a spot welded cabinet base containing a 15-gallon insulated storage type water tank. This tank is made of rust-resisting copper bearing steel, galvanized by the hand-dipping method. It is tested to 300 pounds hydrostatic for 100 pounds working pressure and the special 2,000-watt heating unit is divided into two circuits of 1,000 watts each. A dual circuit thermostat automatically governs the use of current, depending on the temperature and amount of water used.

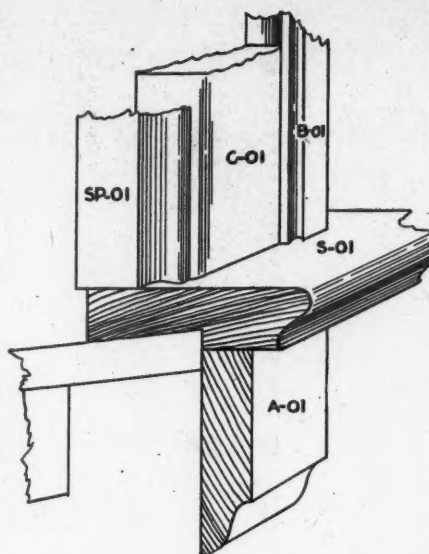


Trim Wood Cut to Fit

DELAYS, error, bother, time and labor and material are saved by the use of trim which has been cut to length and is shipped in corrugated paper cartons ready for rapid installation. For each opening, door or window, there are two packages of material, one containing the vertical pieces and the other the horizontal pieces. The carpenter's helper selects packages containing the right lengths, unpacks them and hands them to the carpenter, who is enabled to work rapidly and without wasting time selecting and cutting.

Each piece is cut to correct length so that there is no waste material and no sanding is required. No sorting is necessary and only about 50 per cent of the saw cuts as compared with the old method. It is said that this effects a saving of at least 33⅓ per cent in trimming a house and assures a perfect finish and that three carpenters can completely trim a six-room house in one day.

One dealer, it is stated, has reported that with long trim it took one man, on the average, one nine-hour day at 75 cents an hour to get out the trim for a single house and load it on the truck. This cost \$6.75. With this new type of trim the same man can load the truck in 20 minutes at a cost of 20 cents, or a saving of \$6.50. Figuring an average of 35 openings, this is a saving of 20 cents per opening.



Wood Trim, Cut To Fit Is Economical of Time and Labor.

This trim is made in all kinds of trim wood, including white pine, basswood, chestnut, yellow pine, whitewood, cypress, birch, oak, sap gum, mahogany and red gum. Each package is marked as to contents and its use not only eliminates waste and installation cost, but also reduces storage space, handling and overhead.



Here Is Washable Wallpaper

WASHABLE wallpaper sounds like some "too good to be true," but it is not only possible but it is an actual fact, a product now on the market and available to all. This is a genuine paper, not a fabric, and can be sold at a proportionately low price. Not only may ordinary dirt and soiling be washed off of it with ease and without injury, but, according to one user, it is possible to throw a whole bottle of ink on the wall and wash it off with a damp cloth, leaving no mark. This user is a hotel owner who demands the best for his hotels and finds this wall covering a practical means of keeping hotel rooms clean and fresh with "practically no labor cost."

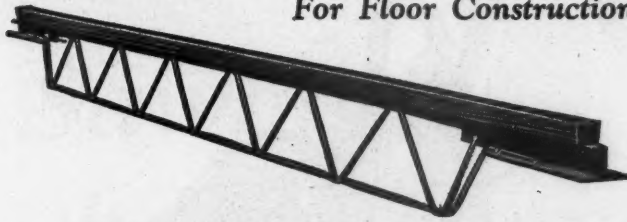
This paper is made in a wide range of patterns and colors and makes an appearance equal to the best grades of wallpaper of the familiar sort. For hotels it is especially desirable, though equally suitable for private residences and other buildings.



This Wallpaper Can Be Washed Clean With a Damp Cloth Even When Ink Is Splashed on It.

Massillon Light Joists

For Floor Construction



THESE joists are used in place of wood joists anywhere that wood joists are used. They eliminate the shrinkage and warpage of wood joist floors and prevent cracking of plaster. Piping and conduits can be run through the joists, eliminating cutting and weakening joists as is the case where wood is used. Plumbing installation costs are reduced.

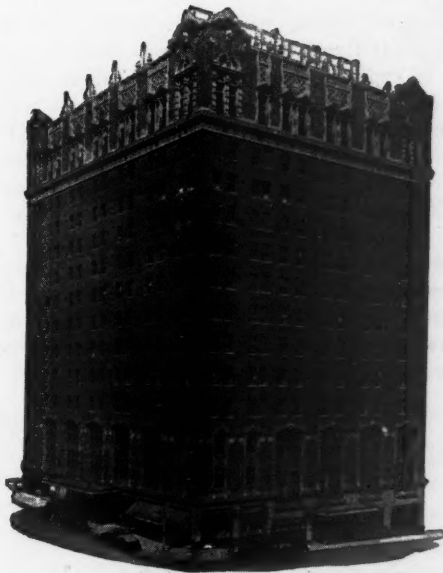
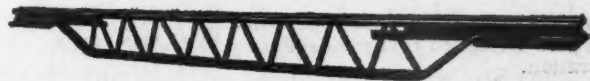
Massillon Light Joist floors are built in the same manner as wood joist floors. The joists are supported on any type of wall or partition. They frame equally well with wood and steel beams. They are bridged the same as wood joists and flooring nailed to the top member. When metal lath and plaster ceiling is applied underneath the joists, the lath is wired to the bottom of the joists. Metal ceilings, plaster board and other types of ceilings are readily attached. These joists are carried in stock in standard sizes to meet all span requirements up to 23'-6". Let us send you detailed literature.



Massillon Light Joists are used in all types of buildings where wood joist construction is permitted.

Massillon Bar Joists

For Fireproof Floor Construction



Massillon Bar Joists are used in all types of fireproof buildings.

OUR Light Joist meets a certain need separate and distinct from the requirements fulfilled by our Massillon Bar Joists. Massillon Bar Joists are used in building fireproof floors in all types of structures. This fireproof floor construction is scientifically designed to secure the maximum benefits from the materials involved. The dead load of each floor slab is materially reduced—the structural savings go right down to the footings—the construction time is cut to the minimum. And yet, when you analyze the layouts, you will be surprised at their simplicity—even to the installation of piping and miscellaneous floor accessories. These can be run in any direction through the web of the joists without raising floor levels or suspending ceilings. Massillon Bar Joists are made in standard sizes to meet all span and load requirements and are shipped from stock. Send for literature giving construction details and safe loading tables.

The Macomber Steel Company

Successors to The Massillon Steel Joist Company

Originators and Largest Manufacturers of Bar Joists

909 Belden Avenue, N. E.

Canton, Ohio

Canadian Manufacturing and Sales Agents: Sarnia Bridge Co., Ltd., Sarnia, Ont.

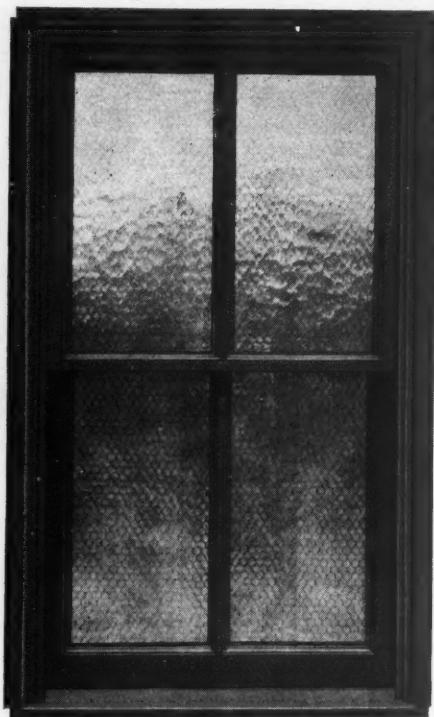
MASSILLON

STANDARDIZED STEEL BUILDING PRODUCTS

Hollow Steel Windows

THE hollow steel windows illustrated here are made in all types including double hung, single pivoted, double pivoted top hinged casement and stationary, and the double hung with pivoted, hinged or stationary transoms. An approved mullion is available where it is necessary to use more than one single unit in an opening.

The metal from which these windows are made is



Hollow Steel Sash for All Types of Windows Are Designed to Provide Perfect Operation.

24-gage, copper bearing, galvanized steel. The head jambs and all sash rails are constructed of one piece of metal each, excepting the back covers, and all covers are securely locked to their respective members. The heads and jambs have a molded brick or staff bead and are constructed for building into brick, stone or terra cotta walls.

All members are carefully formed and miters are neatly cut, lapped and riveted. Where two sash members lap on an exposed surface

the under member is offset the thickness of the metal to permit a smooth and even surface and pulley stiles are formed accurately to provide perfect operation of the sash. Each jamb has a weight pocket of ample size to permit of easy application of sash weights. Weight pockets have a removable cover which fits tight and does not offer obstruction to the sash in operation.

All sash are carefully fitted into the frames at the factory to insure perfect operation and a weathertight job. The meeting rails lock tightly together when both sash are closed to insure strength and weathertightness.

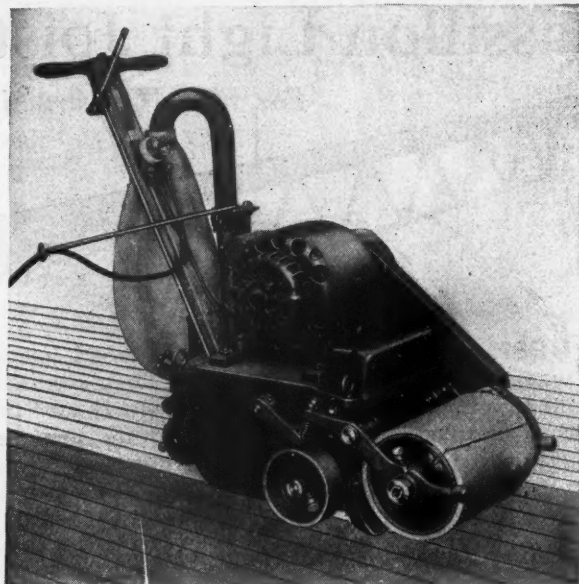


Improved Floor Surfacers

"THE secret of making money surfacing floors lies in the kind of a machine you use," says the manufacturer of this floor surfer. "You want a machine that stays on the job day in and day out, that does good fast work and that you can absolutely depend upon for continuous and satisfactory performance."

The illustration shows this company's 1927 model surfer which is described as being very easy to operate and simply and ruggedly built so that it can do fast and uniform work with little attention from the operator. It produces a surface free from waves, tool marks and imperfections. An inexperienced workman can accomplish entirely satisfactory results with this machine for it is as nearly trouble free as any moving mechanism can be made.

This machine has an overall height of 38 inches including the length of the handle, is 19½ inches wide and 38 inches long. The drum is 8¾ inches in diameter and 12 inches



With a Machine Like This You Can Be Sure of Making Money in the Floor Surfacing Business.

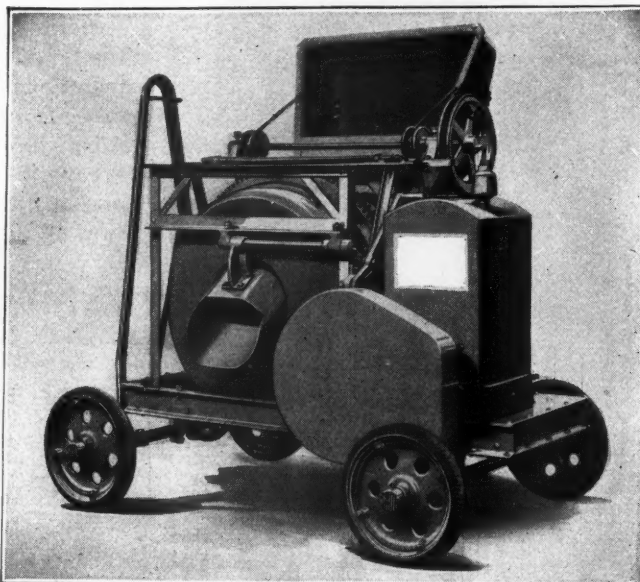
wide and has a speed of 725 revolutions per minute. The capacity of the machine depends upon the condition of the floor, the grade of finish demanded and the ability of the operator. Under ordinary conditions it will turn out as much work as five or six men scraping by hand.



Speedy One-Bag Mixer

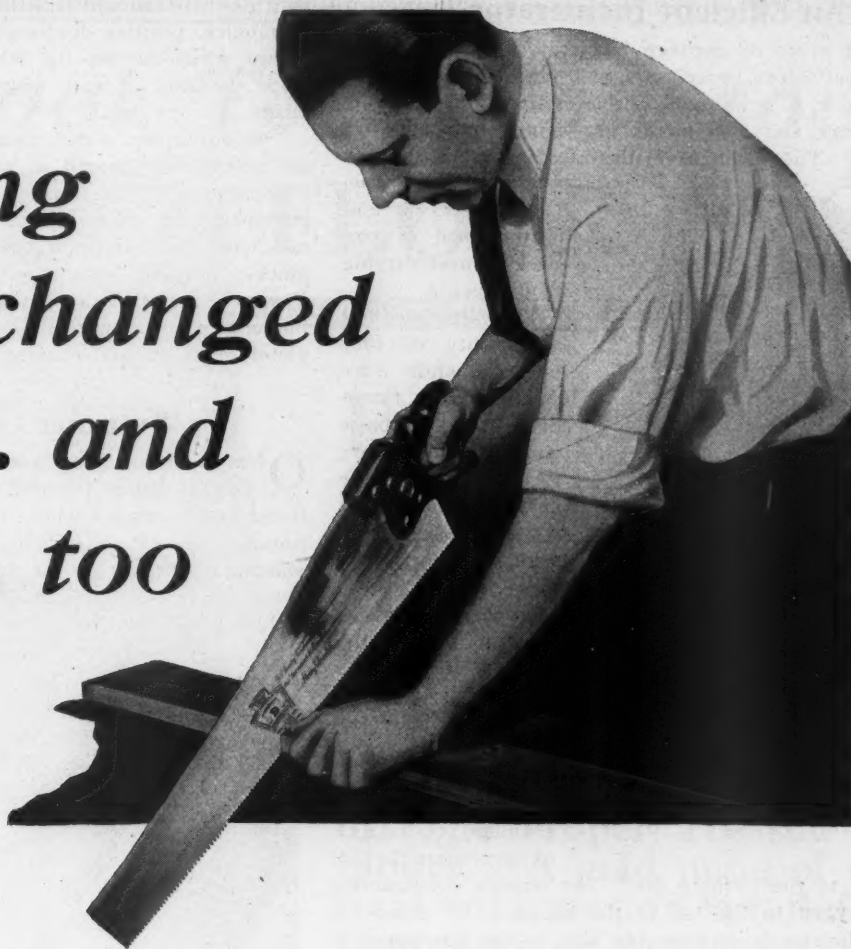
A NEW, one-bag, non-tilting mixer has lately been announced as an addition to a well-known line of concrete mixers. It is especially designed to speed up work on concrete of 1-2-4 and 1-2½-4 proportions and is a companion to the similar tilting mixer of the same line. The frequency with which architects and building contractors are specifying concrete of these proportions nowadays particularly recommended the development of this speedy one-bag mixer.

The construction includes a high degree of ruggedness and facilities for ease of handling and fast work. It can be furnished with four cushion rubber tired wheels when desired and, because of its compact construction and comparatively light weight it is highly portable.



Designed to Speed Up Work, This One-Bag Mixer Has Been Added to a Well-Known Line.

Sawing has changed ... and Saws, too



TOMORROW just notice how much of your sawing is in light material.

When you are driving your heavy, wide-blade saw through a board, — think how much easier it would be with a lighter, narrower blade.

Disston Lightweights are the saws for today's sawing. Less weight! Less width to the blade! Faster work with less effort, for you haven't the weight to push.

Disston skill retained all the spring

and life, the temper and stiffness in these narrower blades.

You get the same tapered blade for easy running; the same balanced tool for fast cutting — with the added advantage of a lighter, "easier-to-work-with" saw.

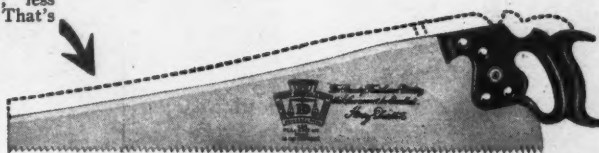
Disston Lightweights are made in all the popular models. Ask your hardware man to show you Lightweight No. 7, D-8, No. 16, No. 12 — or any other favorite saw in a Lightweight model.

HENRY DISSTON & SONS, INC.

Philadelphia, U. S. A.

Makers of "The Saw Most Carpenters Use"

Dotted line shows blade of a regular D-8. Compare it with the Lightweight D-8 shown. Less weight; less width to the blade. That's what you want today.

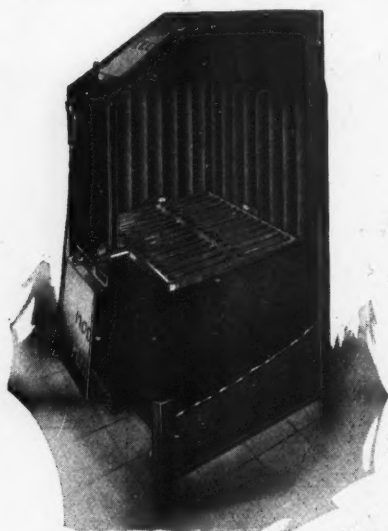


DISSTON

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

An Efficient Incinerator

THE real value of garbage incinerators in eliminating trash, foul odors, mice, rats and flies and much disagreeable work, is now quite well recognized and the truly modern homes and apartments are being equipped with incinerators. The incinerator illustrated is establishing a



Here Is an Incinerator Which Has Been Thoroughly Tested and Proved and Is Available in Two Sizes to Meet Varying Requirements.

reputation for satisfactory service and is furnished in two sizes to meet varying requirements.

The large size has a capacity of four bushels while the smaller is a three-bushel size. In basic construction they are the same though the smaller size sells for somewhat less and with it a short stove pipe joint leads to the chimney whereas the other fits directly. An automatic gas control is optional with either model.

In this incinerator corrugated cast flues in the combustion chamber conduct oxygen from the ash

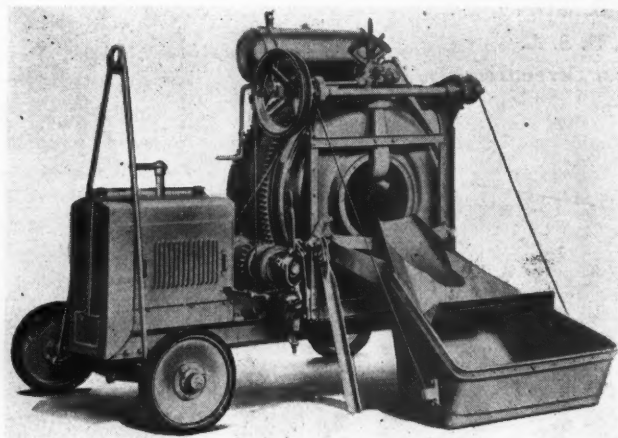
pit directly to the burning fire. The outside corrugations conduct oxygen to the top of the fire and, by means of the dome linings, brings oxygen also to the flue opening. This admixture of oxygen with the burning gases at the proper points obviates any possibility of odor in the house and also dilutes the gases which enter the flue to such an extent that there is very little smoke from the chimney.



Light, Fast One Bag Mixer

ONE of the well-known manufacturers of concrete mixers has developed a new one bag mixer which embodies all the latest improvements making for fast operation along with light weight, compact design and sturdy construction. It will handle a one bag batch of 1-2½-4 concrete.

Designed for convenience and speed, the charging skip is low enough for wheelbarrow charging without building elevated runways or platforms. It is roomy and sufficiently



All the Latest Improvements Making for Fast Operation, Light Weight, Compactness and Sturdy Construction Have Been Embodied in This New, One-Bag, Concrete Mixer.

long to chute the materials into the drum in one swift slide. The quick, positive discharge chute has a clearance of 27 inches which allows the wheelers to load their barrows from the side or end, according to the location of the mixer.

The automatic water measuring tank is equipped with an indicator graduated in gallons for accurate and quick measurement. This mixer, mounted on a narrow frame, equipped with either rubber tired or steel rimmed wheels, and with the weight of the drum over the rear axle, is quickly portable and easy to place in narrow quarters. Power is furnished by a single cylinder, four cycle, gasoline engine. The transmission is the worm drive type, completely enclosed and running in oil.



Summer Cottage Stairs

ONE model of a well-known make of disappearing stairway is being featured by the manufacturer for use in summer cottages where it forms a convenient and economical means of utilizing second floor space without wasting any space on the first floor, or of utilizing storage space above the living floors without wasting floor space.

This model, shown in the accompanying illustration, like



Handy Disappearing Stairs Serve the Summer Cottage and Save Much Precious Space.

other models made by this company, is mounted on a ceiling panel where it is entirely out of the way when not in use. When anyone wishes to use the stair it is easily and quickly lowered into place by anyone. It is so constructed that no effort is required for lowering or raising.

This Book Tells How to Cut FLOOR COSTS



IT tells about all possible treatments. Where and When and WHY to use Filler, Varnish, Wax, Shellac, Oil, etc.; covering capacities, proper methods of cleaning and refinishing.

No permanent success was ever made using cheap materials. True economy is pointed out in "The Proper Treatment of Floors". A gold mine of practical information for Builder, Contractor or Architect.

JOHNSON'S WAX *Electric floor Polisher*

Make the **FINEST** finish in the world, the **EASIEST** to obtain—a tool every builder needs. Small and handy—imparts a hard, durable lustre ten times faster than other methods.

For **ALL FLOORS**—hard-wood, soft-wood, open-grain, close-grain, dance floors, linoleums, rubber tile, cork carpet, cork tile, magnesite, mastic, terrazzo, cement.

Johnson's Interior Finishes

~
Varnishes
Enamels
Undercoats
Wall Finishes
Wood Dyes
Waxes
Fillers

S. C. JOHNSON & SON,
Dept. A. B. 8, Racine, Wis.
"The Floor Finishing Authorities"

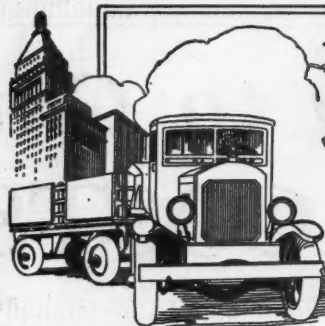
Please Mail Me Immediately the new
Johnson Floor Book—no charge—no
obligation.

Name.....

Address.....

Town.....

State.....



MOTOR TRUCKS AND TRAILERS

Hot Weather Is Here— Have Your Trucks Ready

THE days are here when troubles pile up for the contractor who uses trucks. The summer months are always expensive ones in maintaining motor equipment. The breakdowns and higher repair charges that are noticed in hot weather by practically all operators are due to the greater strain inflicted on the vehicles during this period.

It is a good time now to check up on some of the features of truck upkeep that help to relieve this condition. There is nothing difficult about the precautions which must be taken to give the trucks a fair chance in summer. If the operator will make a few necessary adjustments when they are required, and remember a few points of attention that will help to keep the trucks running at their best, he will be amply repaid in the form of more satisfactory service and he will find on comparison with previous records over summer months that his running expenses will be substantially lower.

Hot Weather Precautions

It is ordinarily necessary to change the carburetor adjustment of a motor truck during the hot weather, the adjustment for summer being a trifle leaner than that for winter. Overheating is sure to result if the carburetor is improperly adjusted. Great care should be taken that the adjustment when made is correct, and then it should be left alone. It is impossible to maintain the proper carburetor adjustment if the driver tinkers with it every time the engine shows the least irregularity of running.

Timing has an important bearing on cooling. In hot climates where temperatures are excessive for a considerable part of the year, the engine may be made to run cooler, but at a slight sacrifice of power, by setting the camshaft one tooth ahead (earlier on the timing gears, so that the exhaust valves open earlier). A weak spark has the same effect as late spark timing, and overheating will result.

Only the best quality of rubber hose should be used for the water connection. The inside tubing of cheap hose is apt to dissolve, the rubber particles being carried along with the water and clogging up the radiator. Hose without

rubber inner lining is apt to give trouble from the fabric coming loose and flapping over the opening, shutting off the water.

It is important to have a clear understanding of the truck's cooling system. See that the flow of water is not

impeded by any sort of obstruction, and that the overflow pipe is not bent below the level of the base of the radiator filler. Be sure that the overflow pipe is not clogged or flattened.

It is important to see that the ignition system furnishes a spark of sufficient strength. A weak spark, usually due to excessive lubrication of the magneto, dirty breaker or distributor or weak magneto, will have an effect similar to late spark timing, and overheating will result.

Some truck owners make the mistake of obstructing the front of the radiator with license plates or signs. Good air circulation and clean radiating surfaces are as important as good water circulation. It is well to clean

the outside of the radiator well before the hot spell.

Adjustment of the valve tappets is also important. It is generally agreed that they should have from 0.008 to 0.010 inch clearance. This, however, may be gauged satisfactorily by making the clearance the thickness of an ordinary post card.

Be sure to see that the fan turns easily and that the belt tension is correct. A good test of the tension is to run the fan by hand with the engine not running. If it is possible to slip the belt easily, but not possible to spin the fan, then the tension is right. The fan should be cleaned and well greased, and kept in this condition always.

The average working temperature of oil in summer is higher than in winter, so oil, of the same body, will be thinner. Sometimes it is advisable to use a grade heavier oil in summer. In excessively hot spells an especially heavy grade of oil may be required to maintain the oil at the proper consistency in operation. When a heavier oil is used, care should be taken not to work the engine before it is warmed up.

POINTS FOR OVERHAUL

Whether a complete overhaul is needed at the beginning of a summer season depends upon the age and condition of the truck. At the very least, all points of lubrication should be attended to with extreme care, and the vital working parts of the engine and chassis examined.

It is far better to detect and remedy any troubles, no matter how small, in advance, than to have them develop into large repair items, taking days of the truck's time later on when it is considerably more valuable. The following are some of the important points which should not be overlooked:

1. Cleaning carbon. 2. Grinding valves. 3. Timing valves. 4. Test compression of cylinders. 5. Take up bearings where needed. 6. Check valve tappet adjustments. 7. Clean magneto. 8. Check wheel alignment. 9. Carefully examine steering knuckle and all parts of steering gear. 10. Test spark plugs or replace if required. 11. Inspect wheel bearings. 12. Inspect brakes.

The Sunkist Lumber Company, of Monrovia, Calif., owns this International Speed Truck. They have been strong for International haulage for six years.



Above: Showing two of the Internationals of the Kerckhoff-Cuzner Mill & Lumber Co. of Los Angeles. This firm owns both Speed and Heavy-Duty Trucks and is buying more of both as fast as needed.

The California Highway Commission owns a fleet of Internationals of which one, a Speed Truck equipped with dump body, is shown below.



Everywhere—INTERNATIONAL Trucks!

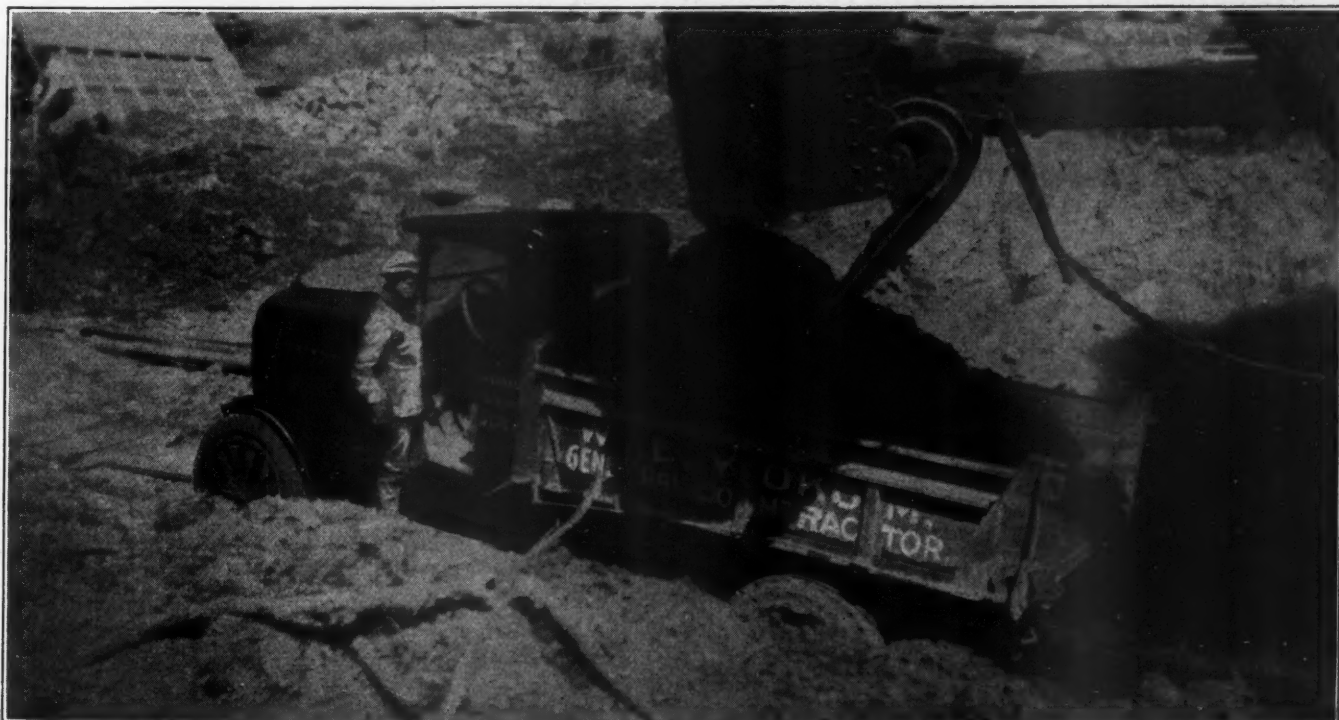
IN construction and excavating, in the building material and building field, in private and municipal haulage, notice the strong steady swing toward International. As Yokom says, *the trucks have got to be good*, and Yokom, like tens of thousands of others, finds the best stuff, the most dependable performance, the cheapest hauling, in International trucks built by International Harvester. Whether it's Dump Truck stamina you need, or Speed Truck speed, put Internationals on the job and come as close to hauling perfection as it is possible to come.

Sizes: $\frac{3}{4}$ -ton "Special Delivery"; 4 and 6-cylinder Speed Trucks $1\frac{1}{4}$, $1\frac{1}{2}$, and 2-ton; and Heavy Duties to 5-ton. Service through 136 Company-owned branches in the United States. Write us for folders, etc., and see the trucks themselves.

"In my business we take trucks where the going is the hardest. We must have trucks that are absolutely dependable. That's why we standardized on Internationals. They have given us a wonderful 3-year record for low-cost hauling!"

W. L. YOKOM,
General Contractor
Dubuque, Iowa

INTERNATIONAL HARVESTER COMPANY
606 So. Michigan Ave. of America
(Incorporated) Chicago, Ill.



ONE OF YOKOM'S HEAVY-DUTY INTERNATIONALS SHOWN ABOVE

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Keep Engine Clean

Above all, it must be remembered that the heart of the vehicles is the motor, and that the great majority of summer troubles are traceable to some neglect in the care of the motor. These five points are worth considering at this time of the year:

1. See that your truck's engine is clean, inside and out, all the time. The air which goes into the carburetor draws dust and dirt with it, which will not only stop up the carburetor, but if this passes on into the engine it causes rapid wear to pistons and cylinders, or it may work down into the bearings.
2. In the very dusty localities it is advisable to provide the carburetor with an air cleaner to prevent the entrance of dust. There are several such devices on the market.
3. Never use waste to clean the engine, as the lint frequently sticks to the surface and might enter and clog the carburetor.
4. Don't have your motor immediately torn down and rebuilt simply because it acts irregularly. Find out exactly what is wrong, and then let an expert proceed accordingly.
5. It has been said that nothing injures a motor more than to tinker with it, unless it is the unconscious neglect of some detail which results in premature wear or injury to the engine.

Keep Exhaust Clear

The exhaust should at all times be kept clear of obstructions, and mud should not be allowed to cake on the outside of the muffler. The importance of this will be realized when it is considered that 40 per cent of the heat of combustion must escape through the exhaust. Therefore, if any part of the exhaust system is impeded, a part of this heat must be carried off by the cooling water, raising the temperature above a safe limit.

Different types of mufflers vary widely in their construction. Some are extremely simple, while others are complicated, and it is a significant fact that the most effective and silent type of muffler is usually the one that will give trouble first.

At least once a year the muffler should be taken apart and cleaned of all accumulations of soot or burnt oil that may clog up the gas passages. Mufflers are easily taken apart, usually being held together by long, through bolts in those forms where the muffler consists of a number of cylindrical shells of varying diameter held between cast end plates used to support the shell. Even in forms where a large number of chambers are provided, these being adjacent, the muffler is held together by bolts or by being assembled on a central member, usually a continuation of the exhaust pipe.

After the muffler is taken apart, all carbon and burnt oil residue should be scraped off, and all the parts of the muffler thoroughly cleaned with kerosene before assembling. It is also well to go over all the holes designed to break up the gas with a sharp punch or fine taper reamer to make sure that these have not been reduced to less diameter than they should be by accumulation of burnt oil or carbon.

Lubrication is Important

Lubricating oil plays an important part in the cooling of the engine, as it cools the bearings. Keep the crankcase clean; it cools the oil. Oil should be changed frequently enough to keep its lubricating qualities high.

Above all, the truck operator should understand that the practice of continually adding oil without draining old oil out is detrimental to the engine. It can be readily seen that a quantity of dirty oil always makes a resulting quantity of dirty oil.

For best results it is advisable to change oil once every 500 to 800 miles. Remove the drain plug at the bottom of the crankcase and let the old oil run out. You will notice that it is very dirty and invariably full of grit. Then replace the plug and pour in a gallon of light flushing oil (any light oil will serve the purpose). Run the motor for about half a minute in order to flush the bearings and thoroughly clean out the motor. Next drain the flushing oil from the crankcase. Frequently it is necessary to jack up the car or run it on an incline in order to drain the crankcase thoroughly. Replace the plug and refill the crankcase with the correct grade of lubricating oil.

As to the amount of oil maintained in the crankcase, it is well to remember that there is a happy medium, as the truck will not perform without any at all, and too much oil will work into the combustion chamber, producing carbon and fouling the plugs.

It is a good plan to save old oil when drained out and to filter it through a felt hat for use in oiling springs and other parts of the truck.

Care of Cooling System

In hot weather the cooling system should be drained often and replenished with clean, fresh water. The fan belt and fan should be examined for looseness of the belt, tight bearings or loose fan blades and if trouble is found, it should be remedied at once. A loose fan belt will surely cause overheating as quickly as restricted circulation and should be prevented by tightening. The water hose connection between the radiator and the engine should be examined for soft spots which would restrict the circulation.

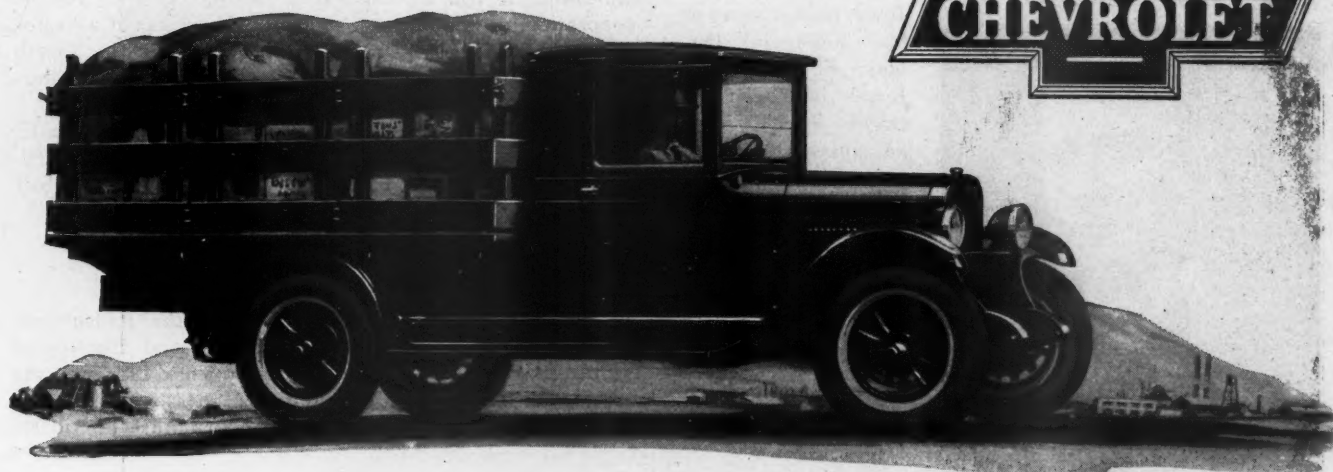
In adding water to the cooling system, if a centrifugal pump is used it is not necessary to bring the water closer than 2 inches from the top of the radiator, for the water, when heated by the engine, takes up more room than when cold and fills the radiator completely. On the other hand, always keep the radiator water level at least 1 inch above the top ends of the core tubes, to insure an even distribution of water to all tubes in the core when the engine is running.

One should bear in mind that for a radiator to function properly it is necessary that an adequate and steady flow of water through it be assured, and likewise that all of the fresh air possible be drawn over the core tubing by the fan, as it is this supply of cool air which is expected to absorb the heat. Care should, therefore, be taken to see that the fan belt and the fan bearings are kept in good condition, as the speed of the vehicle in motion is relatively slow and is not sufficient to insure the circulation of an adequate supply of air through the radiator without the aid of an efficient fan in good operating condition. In other words, the radiator must be fed an adequate supply of water and air to be used over and over again in the case of the water, in the same manner as one expects to feed fuel to an engine for its operation.

There is a clearly defined purpose for the overflow pipe that is provided on every motor truck radiator. This purpose is to allow for the natural expansion of the water which becomes heated during the running of the engine. In the case of some trucks, it will be found that blow holes are also provided to permit the escape of the steam.

When sediment or dirt accumulates in the water outlet, clogging it so that surplus water will not flow through, the result is that the internal pressure generated will follow the line of least resistance and force a leak at a point where the radiator is weakest. Therefore, it is absolutely essential that these outlets be kept open at all times.

for Economical Transportation



Chevrolet Provides *The* World's Lowest Ton-Mile Cost!

Tens of thousands of users have learned by *actual comparison* that Chevrolet provides the lowest ton-mile cost* in the history of the commercial car industry!

This matchless economy is due to advanced modern design . . . extremely low operation and maintenance costs . . . exceptionally slow depreciation . . . and the most amazing price ever placed on a modern, gear-shift truck—a combination of economy features found in no other commercial car in the world.

Whether you operate one or many trucks, go to the salesroom of the nearest Chevrolet dealer and learn for yourself how Chevrolet is designed and built to save you money. Go over the chassis, unit by unit. Note the advanced, modern engineering—typified by a powerful valve-in-head motor, with three-speed transmission and sturdy single-plate disc-clutch. Mark the rugged, quality

construction throughout; heavy channel steel frame—massive banjo-type rear axle—long, extra-leaved, heavy steel springs, set parallel to the frame. Go for a trial load demonstration—and see how perfectly Chevrolet meets your own haulage requirements.

Then examine the amazing economy records made by Chevrolet Trucks, in every line of business and under every condition of road and load—records which prove conclusively Chevrolet's over-all economy.

If you do that, the next truck you buy will be a Chevrolet—for, like tens of thousands of others who have made similar investigations of Chevrolet quality, you will say that here is the greatest dollar-for-dollar value in the history of the commercial car industry—

—from every standpoint, the ideal truck for your business!

*Ton-mile cost is the cost of transporting a ton of material one mile—or its equivalent.

--- at these **Low Prices!**

1-Ton Truck	\$610
Chassis with Cab	
1-Ton Truck	\$495
Chassis	
1/2-Ton Truck	\$395
Chassis	

All prices f.o.b. Flint, Mich.

Check Chevrolet Delivered Prices

They include the lowest handling and financing charges available.

CHEVROLET MOTOR COMPANY, DETROIT, MICHIGAN
[Division of General Motors Corporation]

THE WORLD'S LARGEST BUILDER OF GEAR-SHIFT TRUCKS

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Death Takes J. M. Burch

MR. JAMES M. BURCH, president of the Farley & Loetscher Manufacturing Company, of Dubuque,



James M. Burch.

Iowa, passed away at his home in Dubuque on July 2. Mr. Burch has been for twenty-seven years an important figure in the manufacturing, financial and civic affairs of his city and has held many important positions in addition to his long years of service with the Farley & Loetscher Manufacturing Company.

Aloe Has Open Territory

THE A. S. Aloe Company, 1819-23 Olive Street, St. Louis, Mo., manufacturers of contractors' labor-saving equipment and engineering equipment, announces that it has some excellent territory open to representatives who are in a position to handle its line.

Mattison Buys Factory

ANNOUNCEMENT has been made that Dr. Richardson V. Mattison, president of the Keasbey & Mattison

Company, Ambler, Pa., has purchased the plant of the Traylor Truck Corporation at Cornwalls, on the Delaware River, a few miles above Philadelphia. After extensive remodeling, it will be used as a factory by the Newtile Corporation, of Ambler, a member of the group of asbestos industries headed by Dr. Mattison. This is the fourth factory built or purchased by the Mattison companies during the last twelve months.

It is also announced that Robert H. Anderson, second vice-president and superintendent of the Keasbey & Mattison Company, has been elected president of the Ambler Trust Company.

Start Refixturing Campaign

AMONG the outstanding features of the midsummer convention of the Artistic Lighting and Equipment Association, 711 Graybar Building, New York City, was the adoption of a sales and promotional merchandising and refixturing campaign with an initial expenditure of \$15,000 authorized to begin work.

The Regional Lighting Equipment Exhibition for next year will be held in Chicago in June.

Speakman Adopts Chromium Plating

THE Speakman Company, of Wilmington, Del., has recently completed a large chromium plating department which is probably the most up-to-date of its kind. At least the number of requests for permission to make a trip through the plant which this company has received lead them to this conclusion and indicate a very lively interest in this new type of "permanent" plating. In this new department the Speakman Company is now turning its well-known line of bath room fixtures in chromium plate.

Bradley-Miller
Michigan White Pine
Frames

Made to Last a Lifetime

BRADLEY-MILLER & CO.
BAY CITY, MICHIGAN

frames. *There's only one frame that will do! That's the Bradley-Miller Michigan White Pine Frame.*

Here's a Frame made of Michigan White Pine, a wood that withstands rotting, cracking, splitting and warping, that takes paint well and holds it long, a wood that can be depended on. And their design and construction make them wind and water proof. They are accurate to the last detail. They have no equal.

You can get Bradley-Millers without delay for any size opening, any style of architecture, any type of construction and in the pattern you like. They come in two bundles and can be nailed up in less than ten minutes. Ask your dealer or send the coupon below for complete details.

BRADLEY-MILLER & CO.
1200 Marquette St., Bay City, Mich.

Gentlemen: Please send me booklet describing Bradley-Miller Michigan White Pine Frames.

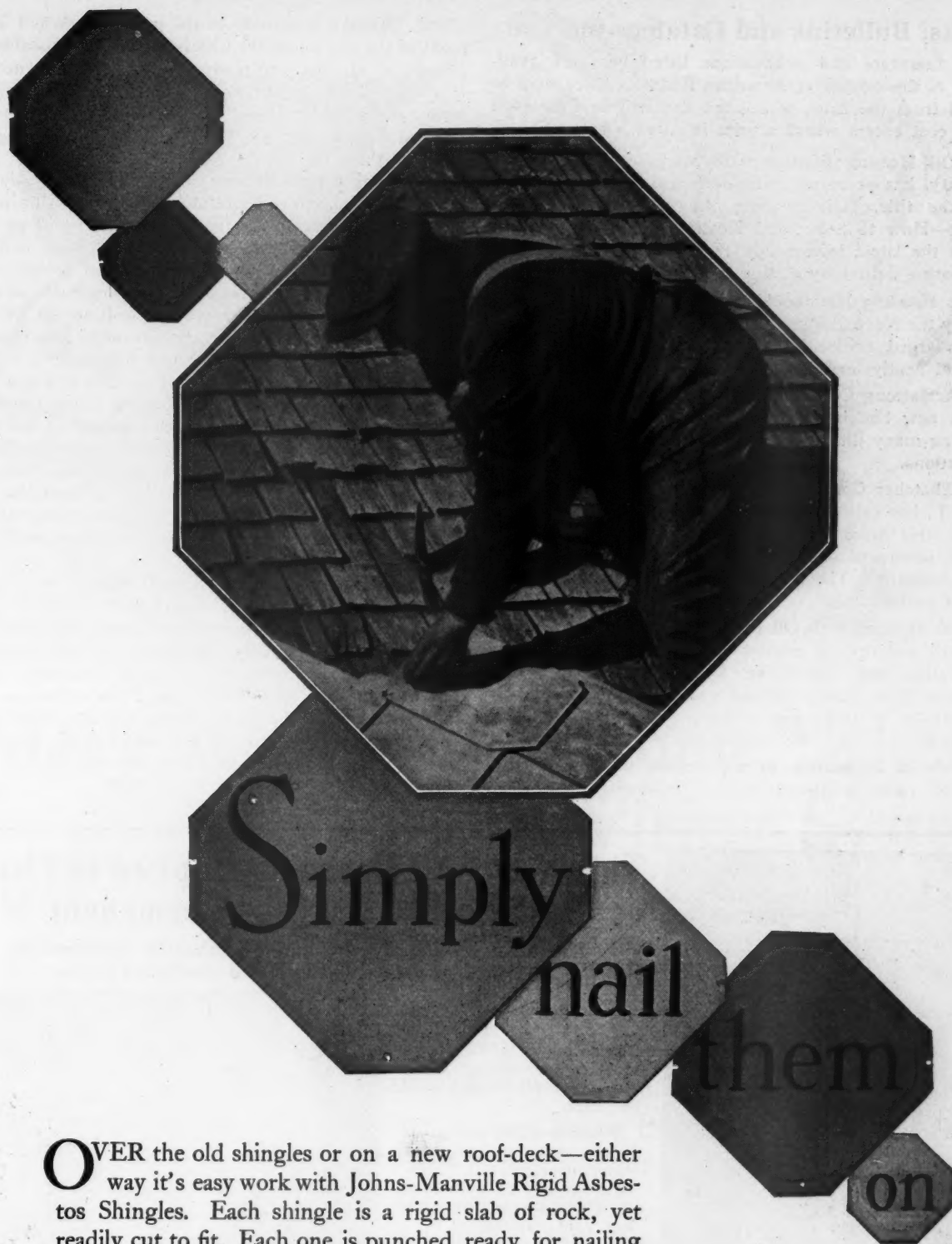
Name

Address

Dealer's Name

Address

Does your Dealer handle Bradley-Miller Frames?



OVER the old shingles or on a new roof-deck—either way it's easy work with Johns-Manville Rigid Asbestos Shingles. Each shingle is a rigid slab of rock, yet readily cut to fit. Each one is punched ready for nailing so they're applied quickly and economically. You can do a better job faster with Johns-Manville Asbestos Shingles.

JOHNS-MANVILLE CORPORATION, MADISON AVENUE AT 41ST ST., NEW YORK CITY
BRANCHES IN ALL LARGE CITIES. For Canada: CANADIAN JOHNS-MANVILLE CO., LTD., TORONTO

JOHNS-MANVILLE Asbestos Shingles

Send
for our book

"How to apply
Johns-Manville
Rigid Asbestos
Shingles."

Books, Bulletins and Catalogs for You

THE literature and publications listed here are available to the readers of *American Builder*. They may be obtained from the firms mentioned and will be forwarded without cost except where a price is noted.

The Oil Heating Institute, 350 Madison Avenue, New York City, has prepared a non-technical, 80-page booklet, under the title, "Oil Heating the Modern Miracle of Comfort—How to Select Oil Heating Equipment," which contains the latest information regarding various methods of oil heating written by leading authorities. Price, 10 cents.

"**Novo Hoisting Handbook**" has been revised and republished by the Novo Engine Company, Lansing, Mich. This is an enlarged edition containing much new material of value and neatly bound.

The Armstrong Cork Company, Lancaster, Pa., has published a new booklet on "Armstrong's Linoleum Floors" containing many illustrations in color and descriptions and specifications.

The Thatcher Company, 39-41 St. Francis Street, Newark, N. J., has called attention to the fact that its booklet, listed in this department in the June issue, describes 50 years of service of one of its boilers not 50 years service of the company. The company has been in business for nearly a century.

"**House Heating with Oil Fuel**," by P. E. Fansler, E. E., is a third and revised edition of this study published by the Heating and Ventilating Magazine Company, 1123 Broadway, New York City, and is a comprehensive survey and analysis of this new industry brought up to date. Price \$4.00.

"**Trends of Population in the Region of Chicago**," by Helen R. Jeter, published by the University of Chicago

Press, Chicago, is a study of the past growth and development of the city under the Chicago Plan, the probable future growth of the city and provisions for its future needs. It is a study made by the Local Community Research Committee of the University of Chicago and the Commonwealth Club of Chicago for the Chicago Regional Planning Association. Price \$2.50.

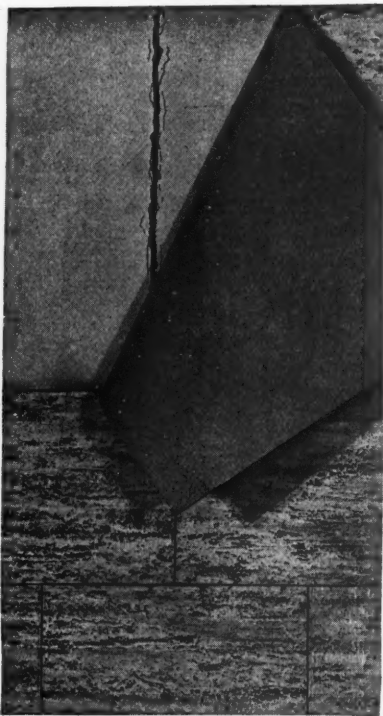
The Frank Adams Electric Company, 3650 Windsor Place, St. Louis, Mo., offers its catalog No. 40 covering its panel boards and cabinets. Its line includes major stage switchboards, major modified switchboards, lighting and power panel boards, fan hangers and floor outlet boxes.

"**Beautiful Homes of Concrete Masonry**," is a new booklet from the Portland Cement Association, 33 W. Grand Avenue, Chicago, containing a handsomely illustrated presentation of concrete tile and stucco houses.

"**Heat Insulation for Houses**," is the title of a new booklet published by the Flax-li-num Insulating Company, St. Paul, Minn., which is a very thorough treatise on the subject of house insulation compiled for ready reference for architects and engineers, from authoritative sources unconnected with the company, and also a simple presentation of the story of Flax-li-num insulation. It is very completely illustrated with diagrams, sketches, section views and scientific data.

The Youngstown Pressed Steel Company, Warren, Ohio, has published a new 1927 catalog of Y P S metal fireproofing products, full of useful information, data and drawings.

"**Standard Construction Methods**," by G. Underwood, published by the McGraw-Hill Book Company, Inc., 370 Seventh Avenue, New York City, is described as a book intended to serve the needs of men engaged in actual construction work, primarily for the use of construction superintendents and others upon whom the responsibility of getting things done may rest. Price \$5.00.



Italian Travertine

This New Wall Covering Applied to Plaster or Wall Board Makes a Permanent Wall

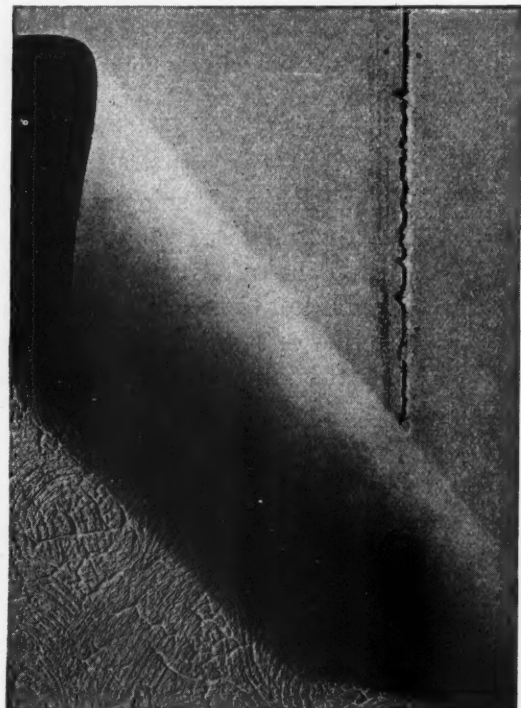
***Inexpensive—Easily Applied—Washable—Decorative
Built Up in Linseed Oil—No Surface Cracks***

Travrtile fabric imitating Italian Travertine Stone, made in any color or design satisfying every taste. Special designs made to order.

Non-repeating pattern of blocks removes the usual mechanical effect. Duplication of line on both sides of sheet saves labor and worry in application.

Travrtine-Wal-Ton-Tone on all walls assures permanency and beauty. Suitable for any room in the home, public halls, apartment houses, stores, corridors, etc. Contractors and Builders investigate Travrtile.

Send at once for sample and free literature.



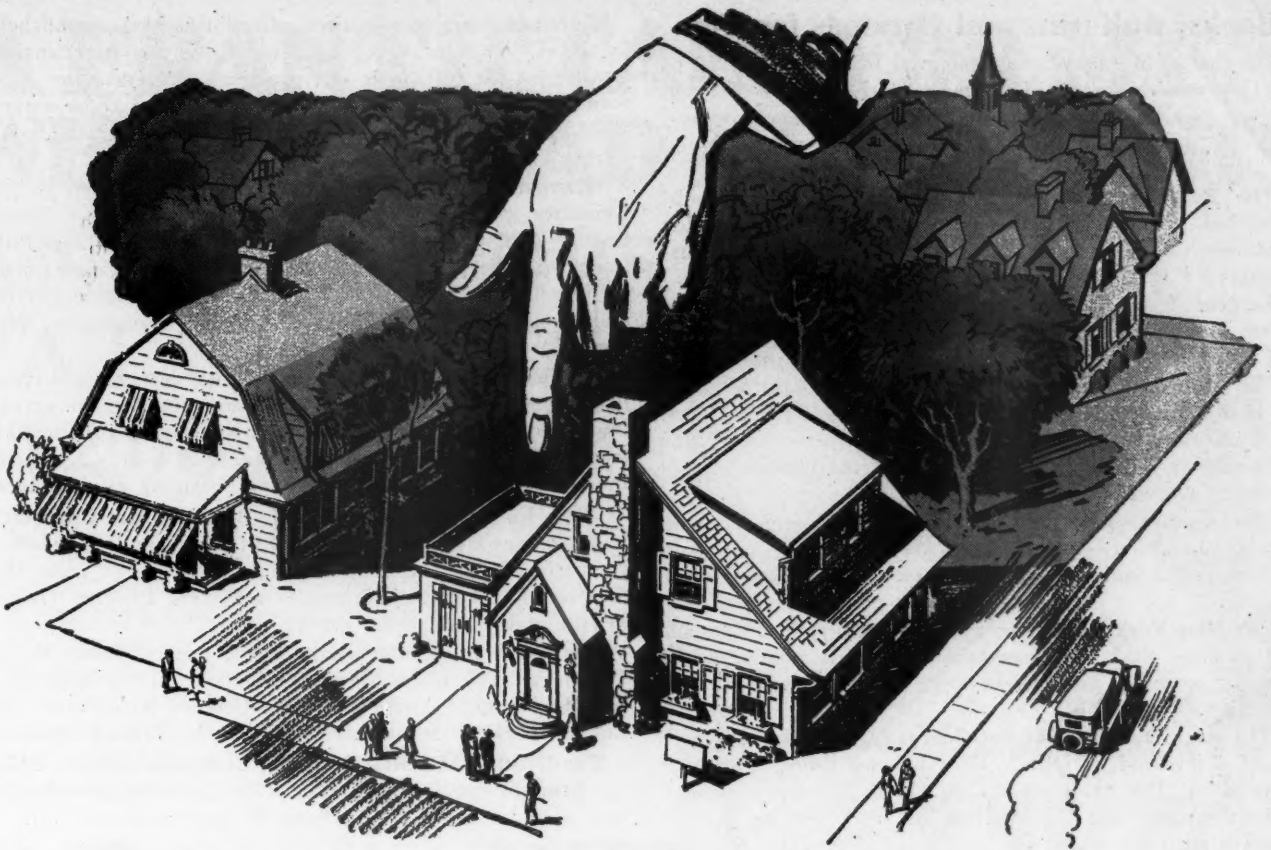
Spanish Pound Stipple

Lincrusta-Walton Co.

Division Tait Paper and Color Industries, Inc.

HACKENSACK

NEW JERSEY



Make it a "model home" with a G-E Wiring System

A G-E Wiring System
gives you selling
points in every room.

Merchandise Department
General Electric Company
Bridgeport, Connecticut



A model electrical home still draws the crowds! And yet the attraction is something you can put into every house you build . . . *complete wiring*. Hundreds of the model houses today are equipped with G-E Wiring Systems, which cost but little more than ordinary wiring.

The public knows today that this widely advertised G-E Wiring System gives them *quality throughout*, and complete provision for comfort and convenience. And the builder who has tried it out knows that it gives him increased profits through quicker sales!



WIRING SYSTEM

—for lifetime service

GENERAL ELECTRIC

Books, Bulletins and Catalogs for You

"Fairbanks-Morse Water Systems," is Bulletin H-289-B, of Fairbanks-Morse & Co., Dept. H-7, 900 S. Wabash Avenue, Chicago, showing, in addition to other systems, the new, completely inclosed home system manufactured by this company.

The Reardon Company, 103 Clinton Street, St. Louis, Mo., has prepared a new specification sheet on Bondex containing directions for mixing and applying and illustrations of stucco finishes.

Sargent & Co., 51 Water Street, New Haven, Conn., offers a new catalog of Sargent locks and hardware under the title "Hardware for Utility and Ornamentation."

"The Storm Signal" is a monthly house organ published by Geo. H. Storm & Co., Inc., Park Avenue at 137th Street, New York City, containing many interesting items for lumber users. The June issue carries information of this company's new fireproof lumber.

The Century Electric Company, 1806 Pine Street, St. Louis, Mo., offers two circulars on split phase induction motors and double squirrel cage induction 3 and 2-phase motors.

The New York Blue Print Paper Company, 96, 102 Reade Street, New York City, has published a new wooden goods circular covering its drawing table and filing cabinet construction.

The Ajax Building Bracket Company, 1551 Rydal Mount Road, Cleveland Heights, Ohio, has published a circular illustrating the value of its brackets for repairing and painting roofs and the method of treatment to prevent leaks after such work.

The E. W. Holmes Pebble Dash Company, 304 S. Church Street, Princeton, Ill., has published a booklet on the "Holmes System of Pebble Dashing" and its money-making possibilities for the contractor.

"Foremanship," by Glenn L. Gardiner, M.A., published by the A. W. Shaw Company, Chicago, is a comprehensive treatise on the principles and practice of foremanship prepared for the use of foremen in industry and those interested in foremanship as a factor in industrial management. Price, \$6.

"Manhattan, the Magic Island," the book by Ben Judah Lubsch, published by the Press of the American Institute of Architects, New York City, was listed in the July issue with the price given as 15 cents, special autographed edition 30 cents. This was, of course, a typographical error and should have read: Price \$15, special autographed edition \$30.

The Ricketson Mineral Paint Works, Milwaukee, Wis., has prepared a new mortar color card showing the actual mortar colors as they come from the package and the same colors as they appear in the brick joint in cement lime mortar, and also formulas for obtaining exact colors.

"The Natural Replacement of Blight-Killed Chestnut" is Miscellaneous Circular No. 100 of the United States Department of Agriculture which may be procured from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 5 cents a copy.

The Blaw-Knox Company, 605 Farmers Bank Bldg., Pittsburgh, Pa., offers a valuable booklet on "Inundation— for Mechanical Control of Water-Cement Ratio and Production of Constant Concrete in Central Mixing Plants."

The Union Metal Manufacturing Company, Canton, Ohio, has brought out a new catalog of its Union metal columns and pergolas which is handsomely illustrated and full of information.

The Frigidaire Corporation, Dept. R-107, Dayton, Ohio, has published a very handsome booklet and catalog of Frigidaire electric refrigerating systems for residential apartments.

Unusual Service for the Contractor

Ryerson combined service on all steel products saves time, money and trouble

The Special Contractors and Builders Division of Ryerson Steel-Service is without parallel in the building fields.

This department has its own warehouses and provides complete service on all reinforcing for concrete, Steel Joist, Metal Lath, Steel Sash, and all the various steel building products are also included.

In addition, structurals, bars, plates, sheets, rivets, bolts, wire, etc., are furnished from the general steel departments. Trench braces, jacks, electric drills, and hundreds of other tools needed on every job are supplied by the machinery and small tool departments.

Contractors use the Ryerson Warehouses as if they were their own. Reinforcing steel, lath, sash and other miscellaneous materials are kept under cover until they are ready to use each item. Delivery is according to their schedule.

Large fleets of trucks and private switch tracks help provide service unequalled by any other source of supply.

All types of jobs are figured and lump sum or pound price quotations prepared.

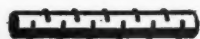
Write for Complete Information.

JOSEPH T. RYERSON & SON INC.

CHICAGO
CINCINNATI
BUFFALO

MILWAUKEE
DETROIT
JERSEY CITY

ST. LOUIS
CLEVELAND
BOSTON



Round and Square Deformed Bars

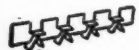


High Chair

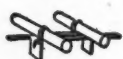


Lower Slab Bar Spacer

Bar Chair



Lower Beam Bar Spacer



Joist Beam Spacer

Welded Solid Steel Sash



Portable Electric Hand Saw



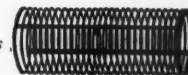
Triangle Wire Mesh Reinforcing

Continuous Stirrups



Step Reinforcement

Spirals



Expanded Metal Reinforcing

Expanded Metal Lath



RYERSON REINFORCING-SERVICE

A FRANTIC CALL FOR MEN WHO CAN READ BLUE PRINTS AND RUN JOBS AT \$4,000 TO \$12,000 A YEAR

SEE how easy it is now for any man to get ahead in the building game. Nowhere else does such simple training count for so much. Nowhere else are there so many countless thousands of openings as there are with contractors, builders and real estate firms, who are constantly calling for **practical** men who can read blue prints. Seven billion dollars will be spent this year for building. Trained men are at a premium in this gigantic industry. Untold thousands are needed at steady salaries far above the wage scale.

90 DAYS' EASY TRAINING PUTS YOU ON THE WAY TO A BIG-PAY "BLUE PRINT" JOB

NO longer is it necessary for building tradesmen to spend years learning all the "mysteries" of blue print plan reading. For now you can get the blue print training in three months that has taken others years to pick up "on the job." We train you at home in spare time by the fascinating "blue-print-method" with lessons that are as easy to read as your newspaper. You do not need more than a common school education. There is no hard, grinding study—the whole course is just like playing some interesting new game.

SIMPLE AND EASY AS A-B-C

These plans and lessons come to you from the oldest and largest school of building construction in the country. This is the kind of training that puts men quickly into the \$5,000 to \$15,000 a year jobs, and in contracting businesses of their own. You learn from actual blue print plans—

from practical building experts. You learn how to read all the plans—estimate all the costs—and supervise the entire construction of a building. You learn everything a foreman, superintendent or contractor has to know.

IF YOU LIVE IN OR NEAR CHICAGO

Visit our School for Builders, open day or evening. A thousand men attend each year. Enter any time. You can get the same training at home, by mail. Same plans; same lessons; same instructors. The coupon brings all facts Free.

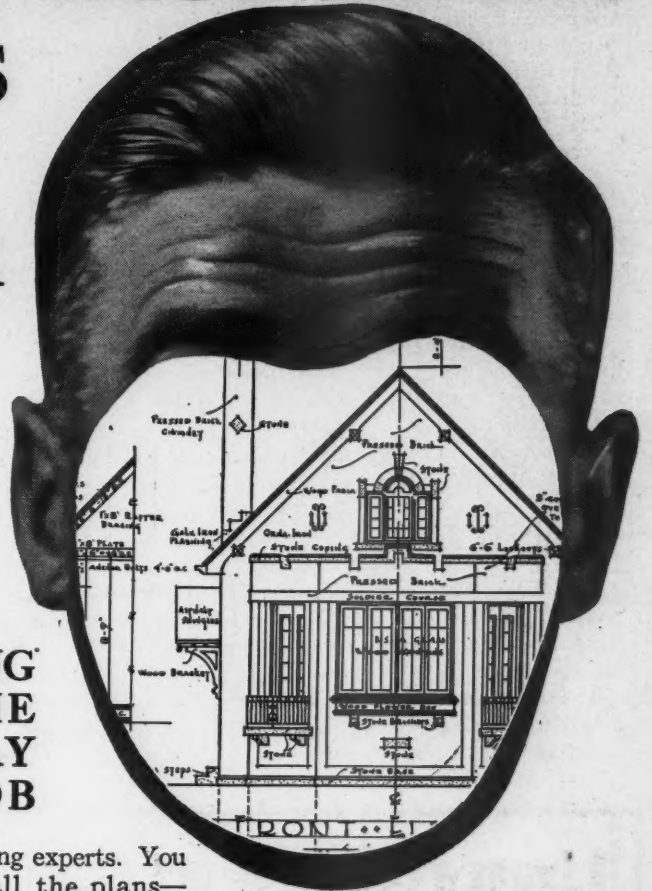
A BIG-PAY JOB— OR YOUR OWN BUSINESS

With this quick, easy training, the building field is wide open to building tradesmen who want to become foremen and superintendents—or who would like to go into business for

themselves. Burgert, Ill., stepped into a Foremanship at a 200% increase in salary. Clifford Scholl went from laborer to Ass't Superintendent in 8 months. Marchand, La., writes: "My salary is now increased 196%." After finishing his training, Baker,

**Chicago Technical
SCHOOL for BUILDERS**

DEPT. K-120, CHICAGO TECH BLDG.
118 E. 28th ST. CHICAGO, ILL.



Ohio, made \$3,800 clear profit in 3 months as a Contractor. Depke, R.I., increased his salary 700% in 12 months.

If you really want more money—if you hope to own a business of your own—if you want quick advancement in the building business—decide now to get this training that you must have for a real success.

FREE Book

Simply mail the coupon below for an intensely interesting Free Book, "How to Read Blue Prints," and full information. See what amazing opportunities open up for you in the seven billion dollar building field. Don't delay. Act now. Simply mail the coupon below.



Chicago Technical School for Builders,
Dept. K-120, 118 E. 28th Street,
Chicago, Ill.

Send me without obligation, your free book, "How to Read Blue Prints" and full details of the course and the opportunities in the Building field. It is understood that no salesman will call on me.

Name.....

Address.....

City..... State.....

Books, Bulletins and Catalogs for You

"The Saw Kerf" is an interesting periodical published quarterly by E. C. Atkins & Co., Inc., Indianapolis, Ind., for the friends of the company.

"The New Competition in the Lumber Industry," a speech presented by O. H. Cheney, vice-president of the American Exchange Irving Trust Company, New York City, before the annual convention of the National Lumber Manufacturers' Association, has been printed and distributed, in pamphlet form, by that association.

The White Door Bed Company, 130 North Wells Street, Chicago, offers a pamphlet illustrating the various space-saving fixtures which it manufactures.

Albert Pick & Company and L. Barth & Company, Inc., 208 West Randolph Street, Chicago, and 32 Cooper Square, New York City, respectively, have published a booklet illustrating "A Few Hotels Recently Furnished" by this organization.

"Evans Vanishing Door" is catalog J, published by W. L. Evans, Washington, Ind., completely covering the line of wardrobe equipment for schools on which this company has specialized.

"Roll-A-Way Sleeping System," a new catalog booklet of the Roll-A-Way Bed Corporation, 225 West Ohio Street, Chicago, is handsomely illustrated in colors showing the application of these beds and many plans for the efficient use of house, hotel and apartment space.

The Kahn Products Company, 2216-18 West Columbia Avenue, Philadelphia, Pa., offers a pamphlet describing its Bernal incinerator and a catalog of its miscellaneous building specialties.

The Kane Manufacturing Company, Kane, Pa., has published its catalog No. 10 illustrating in colors its line of wood and metal frame, rustless insect screens.

The National Radiator Company, Johnstown, Pa., offers a circular illustrating the various styles of its line of Aero radiators.

The Stoddard-Dick Company, 620 Polk Bldg., Detroit, Mich., has prepared a pamphlet on its new Tilt-Tite drop sash, which is described as being a weather stripped, reversible window equipment.

The Rockford Steel Furniture Company, Rockford, Ill., catalogs its line of steel unit cabinets, kitchen, medicine and ironing board cabinets, in a well-illustrated pamphlet.

The Eljer Company, Ford City, Pa., offers a catalog with loose leaf inserts covering its line of vitreous china plumbing fixtures.

The American Institute of Quantity Surveyors, has published its 1926 Convention Proceeding and Year Book, in the form of a 250-page book bound in Fabrikoid and selling for \$2.50.

"A. Directory of Laboratories" has been prepared by the Bureau of Standards of the United States Department of Commerce and may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 15 cents a copy. It is listed as Bureau of Standards Miscellaneous Publication No. 90 and contains a list of 207 commercial testing laboratories and 143 college research laboratories, where commercial testing is done and industrial research problems are investigated.

The Detroit Show Case Company, Detroit, Mich., offers its catalog No. 627 of Desco metal store front construction which is illustrated with elaborate detail drawings and sectional views of store front installations.

The Mason Fibre Company, Dept. 166, 111 West Washington Street, Chicago, has published a booklet of specification and details for the use of Masonite structural insulation as applied for sheathing, plaster base, interior finish, sound deadening and insulation.

More For The Money

When you build homes to sell to owners, that's what you want! And when owners buy from you—that's what *they* want! Cabot's Quilt gives you *both* what you want. Applied to a \$10,000 home it will make a worth-while *first cost* saving to you, because of lower heating system costs.

This is a fact, not theory. And it is a real help in selling to be able to tell a customer truthfully that in a Quilt insulated home his coal bill may easily be \$50.00 a year less, with greatly increased comfort in summer as well as winter. Send for our new Pamphlet B-8.

BETTER INSULATE THAT NEW HOUSE WITH

Cabot's Quilt

IN SUCCESSFUL USE FOR OVER THIRTY YEARS

Samuel Cabot
Incorporated

MANUFACTURING CHEMISTS • BOSTON • MASS • U • S • A • NEW YORK • CHICAGO
PHILADELPHIA • KANSAS CITY • LOS ANGELES • MINNEAPOLIS • SAN FRANCISCO • PORTLAND
Cabot's Creosote Stains • Stained Shingles • Old Virginia White • Waterproof Collophanes

Truss Principle in Joists

THERE are many advantages for designers, builders and owners in connection with the use of light steel bar joists fabricated on the truss principle. They are amply strong for ordinary floor loads and spans, while, at the same time, they lighten the structural load enormously and effect a considerable saving in the construction cost.

Another advantage is that they are adjustable in length and joists for any span from 4 feet to 30 feet 6 inches can be supplied immediately from stock. Piping and electrical conduit can be run most conveniently through the open truss members, and, because the center of gravity is below the bearing plates, they are easy to set and loads can be placed on them immediately. They are most often used to support metal lath and concrete floors above and suspended ceilings beneath. On top of this thin slab of concrete, wood, terrazzo, tile, cement or any other floor surface can be used.

These steel joists are made of two round top bars and two round bottom bars and an interconnecting web bar. They are solidly arc-welded to bearing and vertical plates at the ends. It is said that two men can handle the heaviest joist. It is easy to see that the saving in dead weight with these bar joists is very considerable in a high building and this results in more economical designs for columns, beams and foundations. There is also a considerable saving in steel and labor.

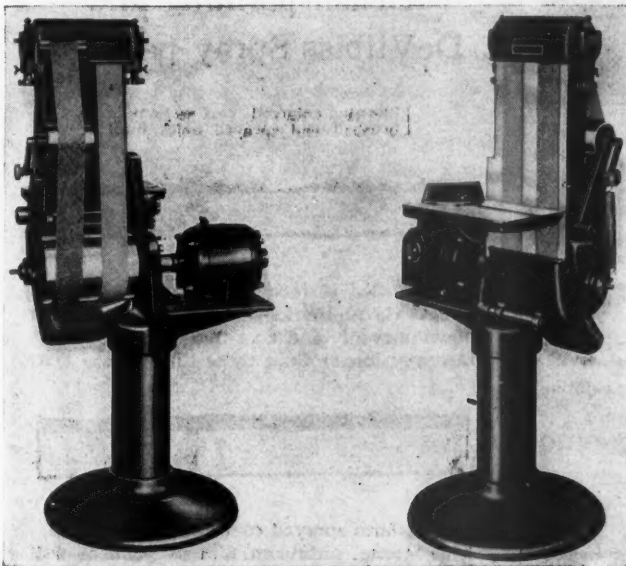
After the joists are put in position, they are braced laterally to hold them in position until the floor slab has set. The top lath is placed and held fast by driving special wedges through the lath in between the top bars of the truss. If nailing strips are required, they are held in place by special screed clips or else wired in place.



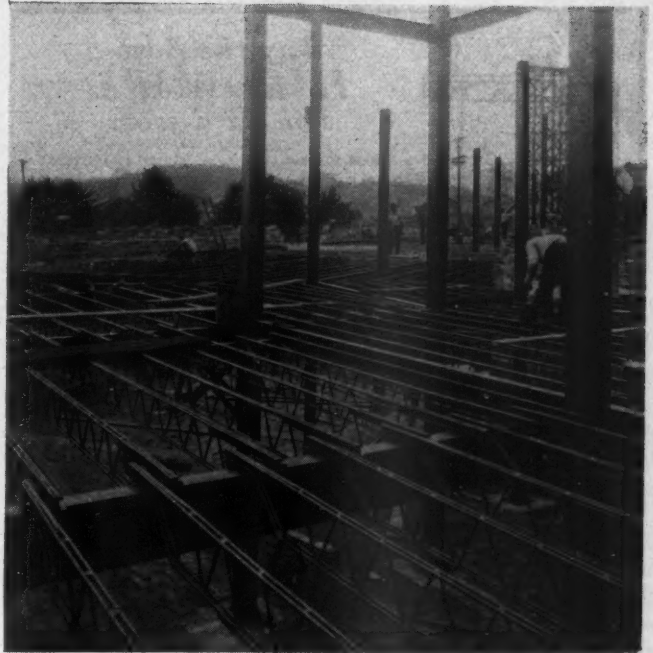
Two Belt Sander Attachment

THE attachment shown here makes it possible to use two belts, each having a maximum width of 4½ inches, on a well-known belt sander which ordinarily carries a single belt 10 inches wide. This has been developed in response to a demand for a machine of this type having two belts, one for roughing and the other for finishing. This attachment makes possible a saving of handling and consequent damage and also of time. It also reduces the capital investment required for individual machines for each operation.

The rear view shows the construction of the attachment



Front and Rear Views of a Well Known Sander with the New Attachment Which Makes Possible the Use of Two Belts.



Steel Bar Joists, Like These, Give Ample Strength and Lighten the Structural Load, Effecting a Considerable Economy.

and also that curves or irregular shapes can be free hand sanded on the belt at the back of the machine, due to the flexibility of the belt given by the third pulley. When it is desirable to use the front of the machine and flexibility is also necessary, a flexible canvas belt pad can be fastened to the metal bed to provide a resilient backing.

The lower drive pulley is straight and the top pulley is double crowned for each belt. The belt on the side toward the motor is tracked by the use of two knobs at the top of the machine. The tracking of the other belt is accomplished by a single knob on the third pulley arm. Each belt is independent of the other in tracking, width and length.

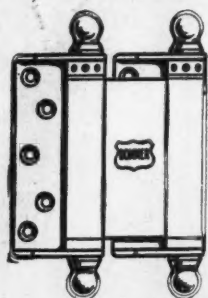


Glass Admits Ultra-Violet Rays

IT is a well known fact that one of the main ingredients in outdoor healthfulness comes from the ultra-violet rays of the sunlight and that these rays cannot penetrate ordinary window glass or plate glass. Because of this fact fused quartz has been generally used in the treatment of sickness by ultra-violet rays but its cost has placed it beyond the reach of those who would desire the benefit of the health producing light in their homes. Now, however, it is possible to obtain this benefit at a reasonable cost.

A new type of glass was first developed in England where it has been put to the test for several years. Later it was introduced in this country and is already being adopted by many sanitariums and schools as well as for private homes. This glass, it is stated, admits about 51 per cent of the available ultra-violet radiation of direct sunlight and about 65 per cent of the indirect ultra-violet radiation, that is, reflected sunlight, cloud shine and sky shine, all of which contain effective ultra-violet radiation. Physicians state that this percentage of admission is amply sufficient for health and healing purposes.

The new glass comes in two types, a clear glass having the appearance, texture and surface of ordinary window glass and a slightly heavier, diffuse, non-transparent glass with a wavy surface, translucent but not transparent. The latter type is useful where clear vision is not required and for roofs, skylights, and so forth, where there is likely to be more strain from snow. Each pane of this glass is furnished with the trade name etched upon it and can be handled and installed by the glazier the same as ordinary glass.



Buy the Best HARDWARE For Hard-wear

For more than 50 years Bommer Spring Hinges have maintained their leadership and proven their superiority over all others.

They have kept pace with the times, because they have been kept up with the times whenever improvement was possible.

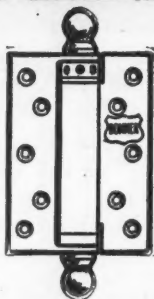
BOMMER SPRING HINGES ARE THE BEST

They are in universal demand—easiest to apply and the most satisfactory spring hinges made.

Your dealer handles them.

Send for New Catalog 50. It is a big help in ordering.

Bommer Spring Hinge Company
MANUFACTURERS
BROOKLYN, N. Y.



Books, Bulletins and Catalogs for You

The Frank Adam Electric Company, 3650 Windsor Place, St. Louis, Mo., has published its 1927 catalog, No. 40, covering complete information on its panelboards and steel cabinets.

The Portland Cement Association, 33 West Grand Avenue, Chicago, has prepared a booklet illustrating, with several color plates, its new headquarters in the building which it recently erected.

"Truscon Drafting Room Standards" is the title of the fourth edition of a booklet published by the Truscon Steel Company, Youngstown, Ohio, containing the standards for its complete line of steel windows and doors, mechanical operators and steel lintels.

The Macomber Steel Company, 909 Belden Avenue, N. E., Canton, Ohio, has issued a pamphlet on "Massillon Steel Windows for Dignity, Beauty and Permanence in Building."

The Jaeger Machine Company, 521 Dublin Avenue, Columbus, Ohio, has published a booklet, No. 127, covering its mixers Nos. 14 S, 21 S, and 28 S, heavy duty and non-tilting models, with specifications and blue prints.

The Farley & Loetscher Mfg. Company, Dubuque, Iowa, offers a small pamphlet attractively illustrating, in colors, its disappearing stairway and the operation of this space-saving convenience.

The West Coast Lumber Bureau, 562 Stuart Bldg., Seattle, Wash., offers the following pamphlets: Douglas Fir—Working Stresses for Standard Grades; Working Stresses for Structural Grades of American Lumber Standards; Durability of West Coast Woods; Creosote Treatment of Douglas Fir; Douglas Fir and Southern Pine—a Comparison of Physical and Mechanical Properties. The first four are the first of a series of technical bulletins to be issued by the bureau.



Your Profits Increased painting the improved DeVilbiss way

Faster painting, more jobs done in present working time, less cleaning up—that's one way your profits are increased painting with the DeVilbiss Spray-painting System.

The greater satisfaction of your customers with the improved quality of painting, as well as with the short time jobs require, brings increased profits through widespread endorsement of your work and methods.

DeVilbiss equipment is practical, complete and reliable. Its operation and upkeep costs are negligible items. Your men will like to paint with it and you'll like the DeVilbiss service.

We'll gladly mail you further FACTS regarding DeVilbiss equipment and how painting with it will increase your profits. Address—

THE DEVILBISS CO.

238 Phillips Ave.

TOLEDO, OHIO

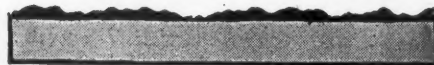
New York
Chicago
Detroit
Philadelphia
Indianapolis
San Francisco

DeVilbiss
Spray-painting System

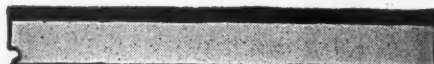
Pittsburgh
Cleveland
Cincinnati
Milwaukee
St. Louis
Minneapolis
Windsor, Ontario

Comparing Quality of Brush-painting and DeVilbiss Spray-painting

[Showing enlarged cross sections of
brushed and sprayed paint films]



The brushed surface shows ridges and thin streaks (brush marks). The paint film wears down unevenly and does not protect the surface any longer than those thin streaks last.



The uniform sprayed coat wears down evenly. This strong, unbroken film of paint is still saving the surface long after the thin brushed streaks of paint have disappeared.

FRANTZ

No. 50 "E-Z" Sets on Garage Doors Assure Lasting Satisfaction

The popularity of No. 50 "E-Z" Garage Door Fixtures is rapidly increasing because of the perfect satisfaction they are giving present users. The man who has just built a garage for his new home and is looking for equipment for the doors that will make them easy to open and close is favorably impressed by the simple effectiveness of this Frantz set. Though more often sold for the standard 8 foot or 3-door opening, the No. 50 "E-Z" Sets also are made for two, four, five and six door openings. The easy action of doors equipped with this set makes it lastingly popular.



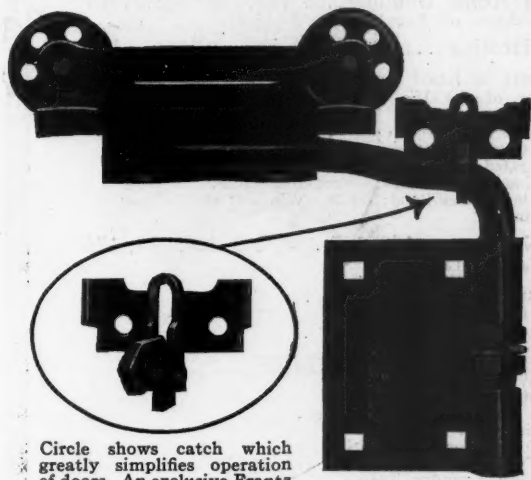
A Typical 3-Door Application

FRANTZ

No. 50 "E-Z" Sets Are Easy to Install —No Brackets or Blocking Required

No experience is required to put No. 50 "E-Z" Fixtures on the doors and make them work perfectly. The man who fits the doors to the opening will find it a simple task to fasten all of the Hardware in place. The "Runwel" Track fastens flat on the header over the opening and does not require blocking

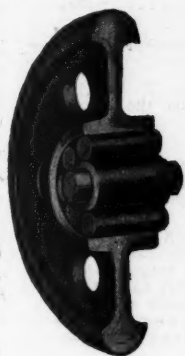
out, brackets or any extra fittings so often found necessary with ordinary sets. And when the No. 50 "E-Z" Set is completely installed you will be surprised to find how easily the doors open, clear to the opening, and close tightly with no effort.



Circle shows catch which greatly simplifies operation of doors. An exclusive Frantz feature that insures perfect operation of doors.

No. 50 "Runwel"
Hanger

The No. 50 Hanger is packed in all No. 50 "E-Z" Garage Door Fixtures. Swivel bolt allows doors to fold flat against side wall or swing around parallel with opening. The catch, an exclusive Frantz feature, makes improper engagement of swivel bolt impossible. Has adjusting feature for raising doors from floor. Wheels of cast iron with steel roller bearings. All other parts wrought steel.



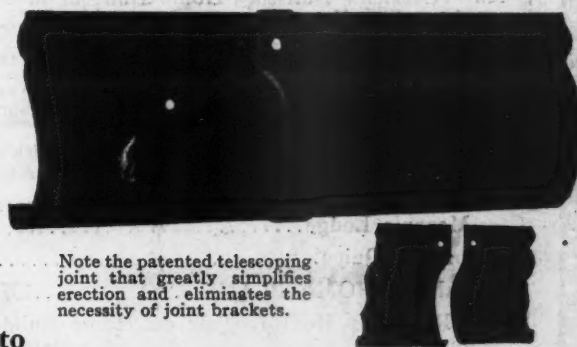
Shows how Hanger is fastened to the door in relation to Track and how Catch holds swivel Bolt.

Send for
This Guide to
SATISFACTION
—It's FREE

Builders, Contractors and Carpenters all over the United States have found the Frantz Wall Hanger a great help in selecting the hardware for the new homes, garages and barns they are building. Send for your copy today, and when it arrives, hang it over your desk or in a convenient place for handy reference.

Dept. A-9

FRANTZ MANUFACTURING
COMPANY
Sterling, Illinois



Note the patented telescoping joint that greatly simplifies erection and eliminates the necessity of joint brackets.

No. 555 "Runwel" Track

"Runwel" Track No. 555 is intended for use with No. 50 "E-Z" Garage Door Fixtures. Provides protection from all kinds of weather. Will carry the average weight door with ease. Wheel tread is shaped to eliminate friction. "Runwel" is a one piece Track that requires no brackets to hold it to the building.

A patented telescoping joint eliminates the necessity of joint brackets. Made entirely of steel in 4, 5, 6, 7, 8, 9 and 10 foot lengths.



Cross section of "Runwel" Track giving dimensions and showing wide, free running space for hangers.

"No Hardware Is Genuine FRANTZ QUALITY Without the Red Label"